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Volume 9 Number 1

# COMPUTERWORLD

# Campus Edition

The magazine for students preparing for computer careers

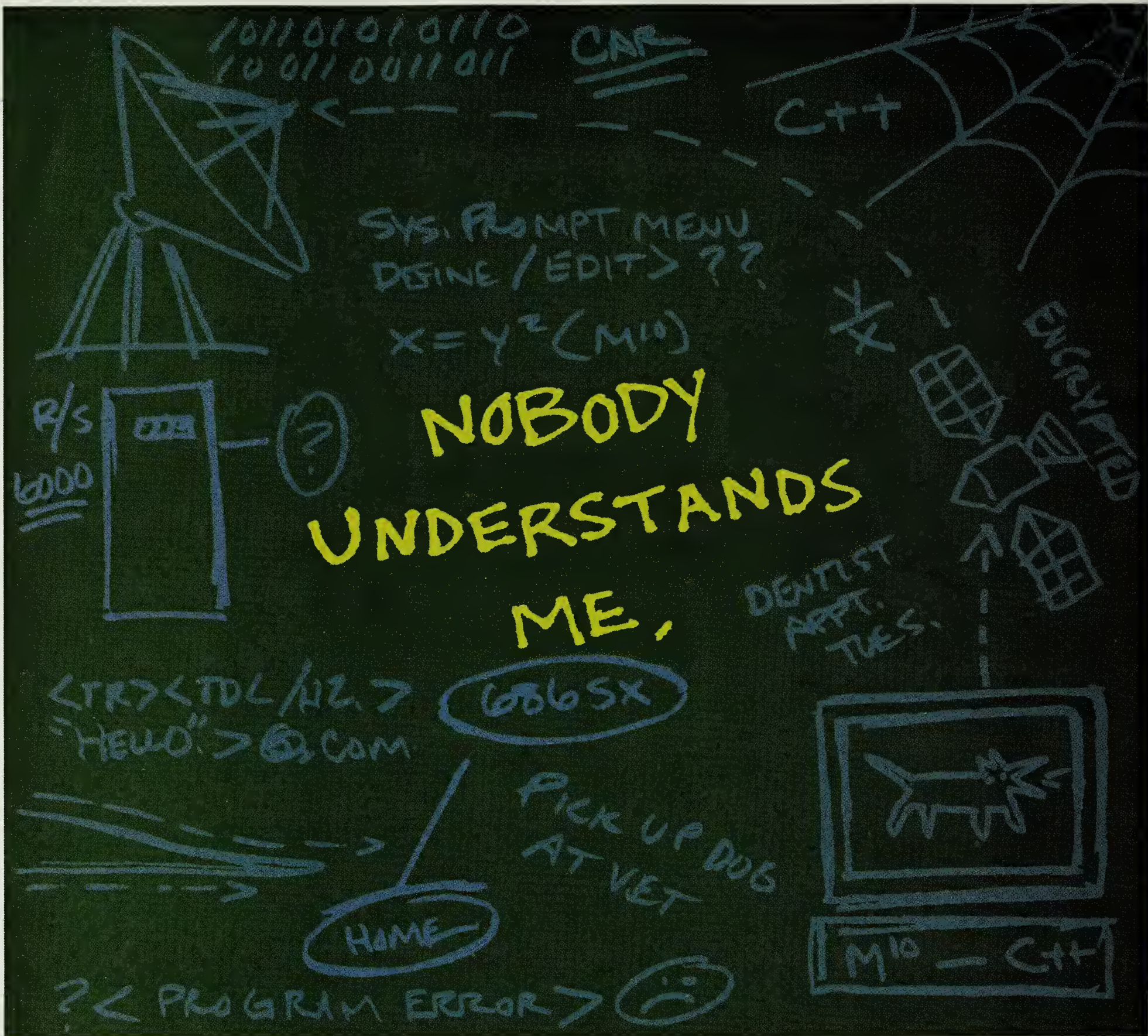
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Cover photo illustration by Carl Vanderschuit

## Where there's a Web, there's a way

It seems everywhere you turn, you see those three W's. WWW.this, WWW.that. Yes, the World Wide Web has leaped into our homes, schools and offices, ensnaring us in its information threads.

The amount of data available at the simple click of a mouse is endless. And yet, how many people actually stop and wonder who makes that information available to us, who manages it and who understands it?

If you're a computer science major, or interested in the field, the answer may be *you*. There's a lot of information out there, and that means a wealth of job opportunities for those of you with the right skills and experience. And we're not talking just about the Web here. Whether you want to be a programmer, network administrator or product developer, there's a growing need for people who can manage all that information.

But before you set out to conquer (or join) the working world of information systems, there are a few things you should know. Our ninth annual *Campus Edition* aims to provide you with even *more* information — and hopefully answer some of your questions. Questions like, What will my job interview be like? ("So, you want a job?" page 85) What can I expect on the job? ("Stressed in IS," page 52) What's it like to work at IBM? Microsoft? ("Hire me!" page 90).

As author and technology guru Bob Rankin suggests, take advantage of the fact that you probably know a lot more about computers than your older co-workers ("Newbie no more," page 5). But knowledge in itself is not enough. Nor is a degree in computer science with no experience ("Experience preferred," page 31). There are a lot of issues you will face in the world of IS, and with the right preparation and expectations, you can succeed — and most likely prosper (*Computerworld's '96 Salary Survey*, page 59).

Think of it as "information-o-rama." Just be sure not to get stuck in the spin cycle.

*Joyce Chutchian-Ferranti*

Joyce Chutchian-Ferranti  
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New doesn't have to mean neophyte. Here's how to hit the ground running and get a jump on career success.

# Newbie no more

Imagine arriving at your new job and finding that your department's file server is slow. You, the new grad with a 4.0 GPA, *know* you can speed it up if you just play around with the CMOS parameters. "Don't fix what ain't broken, kiddo," the project leader says. But you go ahead and pop the hood, twiddle a few bits and reboot. Voila! It's running at 66 MHz! Later, you hear it's completely crashed. And you don't exactly get a pat on the back from your boss.

You're new. You've grown up with macros, megabytes and multimedia. You've got a tilde in your URL. Solving problems with computers and exploiting arcane software features are second nature to you. That's in your favor, because some of your co-workers have been

*Continued on page 6*





*Continued from page 5*

there since Nixon was president. They don't even know where the tilde is on the keyboard.

So as you enter the workforce, you have some distinct technical advantages. But like all those before you and all to follow, you have to learn the ropes of the working world. Being a "newbie" doesn't have to be a painful experience, though; in fact, when you're just starting out, it's a good chance to learn habits that will steer you well throughout your career. Here are some practical steps for ensuring long-term success — and for expediting your co-workers' respect for you as the expert you are.

**Realize that many of your co-workers will be less versed in computers and technology than you are.**

You might feel daunted by the age or experience of the people in your office, but those who have grudgingly accepted the arrival of the digital age often find it hard

to use new technology to its potential. Remember that great cartoon where Dilbert's boss is given an Etch A Sketch and told it's a laptop? That's probably just a tad far-fetched, but it does demonstrate that people who weren't raised with computers tend to use them on a superficial level.

try this!" E-mail to your whole department can work a lot better than spouting off your little gem during a co-worker's presentation to the boss.

By discreetly letting it be known that you're the kind of person who really understands the nooks and crannies of a par-

**"Be careful not to come  
across as a know-it-all  
whiz kid."**

**— Bob Rankin**

Take advantage of this situation. Dig right in to understand the systems you work with, and enthusiastically share any tricks or tips you learn when the opportunity presents itself.

Be careful not to come across as a know-it-all whiz kid, though. Sending an occasional "Look what I found" or "Hey,

ticular computing environment, you'll quickly become a valuable asset to your peers. As a programmer fresh out of college, I employed this technique successfully while working in a group of developers with varied skill levels. It wasn't long before people started coming to me for help

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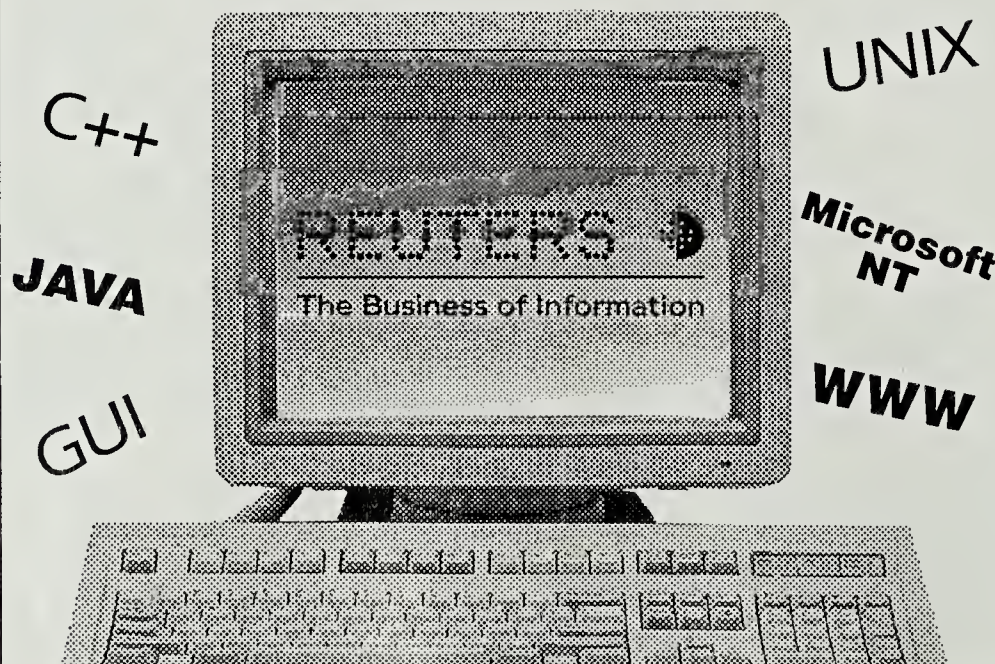
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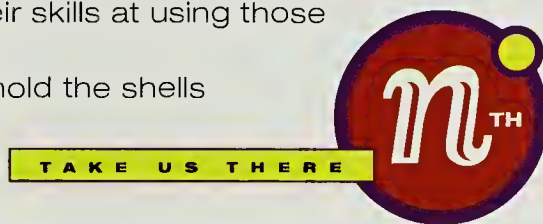
# CHILLIN'

# B

*Bonjour!*

Has a certain ring to it. Ask these guys,  
recent university hires working on site in Paris.  
We sent them into the world, where they can  
apply their technology skills, their problem solving  
skills, diplomatic skills.

And even their skills at using those  
weird little tools that hold the shells  
of escargot  
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*Continued from page 6*  
when they had a tough job to tackle.

### Understand your customers.

If you have the luxury to choose, get yourself into a group where you're close to the customer early in your career. If that's not possible, volunteer to participate in the requirements gathering phase or write end-user documentation. You'll find that closeness to the customer — understanding how they perceive and use your products — will pay off big-time down the road.

In my first programming job, I was fortunate to be on a project for which the developers had "womb to tomb" responsibility. We were working with design engineers who needed software to make their lives easier, so first we endeavored to understand their processes and products.

Writing the design specs, developing prototypes and user guides, and working iteratively with the engineers to make it a really slick tool was enlightening. Fixing the bugs they uncovered when pushing the system to its limits was humbling. Looking back, that CAD system had about as much power as PC Paintbrush (in black and white). But, somehow, they used it to design the power and cooling subsystems for large mainframe computers, and they loved it.

You really can't write good software or provide good customer support until you've sat down with real live users and seen the kinds of frustrations they have. And watching them use your products in ways you never imagined will give you valuable insights into how to design better systems the next time around.

### Develop knowledge outside your job scope.

Maybe you're a database whiz, and you can see yourself spending many happy years

diddling with rows, columns and complex queries. Don't sell yourself short. You'll seriously limit your potential, not to mention your value to an employer, by keeping your focus too narrow. Simply, it pays to dabble. Actively use the library, the Internet and other educational resources at your disposal to develop a body of knowl-

areas I find interesting or working on side projects that have nothing whatsoever to do with my assigned task (don't tell my boss!). But over the course of my career, I've almost always gotten my work done ahead of schedule and found time to develop tools to enhance the productivity of my peers, as well.

So go ahead and goof off a little. Call it "technical vitality" if the boss asks what you're up to. You'll be developing a bag of tricks that'll help you get your "real job" done more quickly and efficiently. You'll also be broadening your horizons in the event you decide that object-oriented cybersplat technology is more exciting than databases.

### Know where to find answers.

Let's face it. No matter how deep you dig or how broad your expertise is, you'll never know all the answers. And in a field as large as computing, you'll probably never even hear all the questions. But knowing how and where to find answers when faced with problems outside your scope will make you seem like an expert in everything.

Learning how to tap into the "collective brain" of the Internet, for example, can take you far, as can learning to make good use of the reference tools in your company or public library. Ask librarians for help. Their job is to speed your searching and point you to resources you might never find on your own.

When you've armed yourself with the proper tools, you can take the advice of Theodore Roosevelt, who said: "Whenever you are asked if you can do a job, tell 'em, 'Certainly I can!' Then get busy and find out how to do it." Now that's a sure-fire formula for success! ☼

## Surf and search

**Here are some of my favorite Internet search tools. Learn to use them to your advantage, and you'll have the tools to find answers for your boss, your team and your personal life.**

### Alta Vista

<http://www.altavista.digital.com>

Great for general-purpose or "brute force" searching. Huge database of indexed Web pages, and a rich search language.

### DejaNews

<http://www.dejanews.com>

The best tool for searching Usenet newsgroups. Find any word in almost any newsgroup.

### Reference.Com

<http://www.reference.com>

Use this tool to create "storied queries" that will filter Usenet daily for things that interest you.

### Liszt

<http://www.liszt.com>

A searchable database of thousands of Internet mailing lists and Usenet newsgroups. Find relevant discussion groups by subject or keyword searching.

— Bob Rankin

edge outside your immediate job scope. You'll constantly surprise people with your depth and your ability to pull solutions out of thin air.

I probably spend 20% to 30% of my workday just poking around in technical

*Rankin is author of the book Dr. Bob's Painless Guide to the Internet and the free guide "Accessing the Internet By E-Mail," which has been translated into 25 languages. Visit his home page at <http://csbh.mhv.net/~bobrankin>.*



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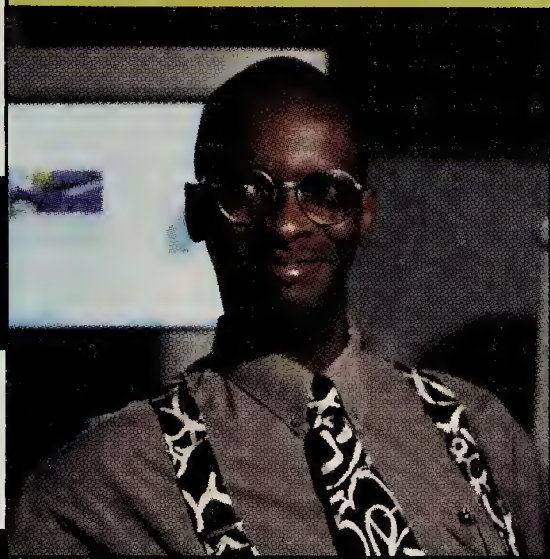
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## Sony Music Entertainment, Inc.

### Senior network engineer

**Colin St. Rose**



NEIL SELKIRK

**New York**  
**Age: 34**  
**B.S. Computer science, City College of New York**

Colin St. Rose can see across the Atlantic Ocean from his office in New York. He is one of five people who work in Sony Music's

LAN services, watching over the music giant's Novell, Inc. NetWare-based network of more than 5,000 sites in the U.S. and Europe.

"We watch and listen for any type of network problems, es-

pecially second- and third-level file server problems, throughout the system," St. Rose says. "Then, we try to find the right ways to solve them using remote technology." St. Rose also looks for and implements new technology, such as network management tools and remote node technology.

Although he routinely puts in 12-hour days (and is then on call in case of network failures), he says working for an industry powerhouse is "exciting and fulfilling."

"If you're looking for a 9-to-5 job, you're in the wrong industry," he says. "Long hours are just the nature of the job." A salary of "over \$50,000" helps ease the pain of long days, but St. Rose says his work is rewarding in itself. "I've discovered that my hobby is my job. I just really like what I do."

St. Rose got his job at Sony two years ago, after enrolling at City College of New York. "I started there in electrical engineering, but one day, I walked into the computer lab, where I saw 90 PCs lined up. I quickly started taking all the programming classes I could and switched to computer sciences," he recalls.

Although Sony Music is a fast-paced work environment, it has a relaxed and friendly atmosphere. Some days, however, there is a stir in the building. "Everyone gets pretty excited when Michael Jackson or Mariah Carey drops by," St. Rose says with a laugh.

— Stewart Deck

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Wash away those job-hunting jitters.  
The opportunities are endless on the Web.

By Leslie Goff

**T**hinking of a career on the World Wide Web? Think opportunity. From Fortune 500 companies to small start-ups, the Web is wide-open territory, generating job opportunities to suit every career preference.

And according to *Computerworld's* 1996 Skills Survey, to be published in November, college grads with HTML experience will be among the most sought-after corporate IS candidates next year. Up there with HTML skills are Cobol, C++ and Java.

But very few Web careers follow any particular model or fit any specific resume. We talked to five recent college grads who've found their niche on the 'net. They share little in common but an interest in using information to serve customers, to entertain and to connect communities. Their stories prove that whatever your background, your skills, your interests or your plans for the future, you can map out a compelling journey on the Internet.

C'mon, take a spin.

PHOTO ILLUSTRATION BY CARL VANDERSCHUIT



# ama!

## JACK HIDARY, 28

President, CEO, founder, Earthweb  
([www.earthweb.com](http://www.earthweb.com))

New York City

B.A., philosophy, Columbia University,  
1991

**J**ack Hidary comes from a family of entrepreneurs. So even though he decided not to go into his family's clothing business, at 26, he couldn't resist striking out on his own.

With his brother Murray, a composer, and their friend Nova Spivak, who quit his job at an online news service, Hidary formed Earthweb, which designs and distributes Java applets. The idea for the company arose from a volunteer Web effort Hidary spearheaded called ReliefNet. Re-

liefNet brings together news, information and activists on 20 different global relief efforts. At the time, Hidary was creating a neural network as part of a brain research project at the National Institutes of Health in Washington.

"I was using the Internet as a research tool, but ReliefNet helped us realize the value of using this new two-way mass medium of the World Wide Web to bring information to people," Hidary says. "It was very exciting, and one of the things that gave birth to Earthweb."

Operating on the two brothers' collective savings, Earthweb quickly became a much sought-after Web site developer, after landing its first client, New York's venerable Metropolitan Museum of Art. A number of heavyweight customers followed, including Morgan Stanley, Simon & Schuster Interactive and Conde Nast Publications, Inc., forging Earthweb's reputation as a Silicon Alley trendsetter.

Now, more than two years old and gearing up for an initial public offering, Earthweb has reshaped itself from Web site designer to software distributor, staking its future on creating and distributing Java-based Internet development tools. In the transition, Earthweb's Gamelan

**Jack Hidary followed his entrepreneurial instincts after college, and now, at age 28, he's president of his own Web site development company.**



Web site, which features downloadable software, technical tips and industry news, has become a de facto online resource for Java developers.

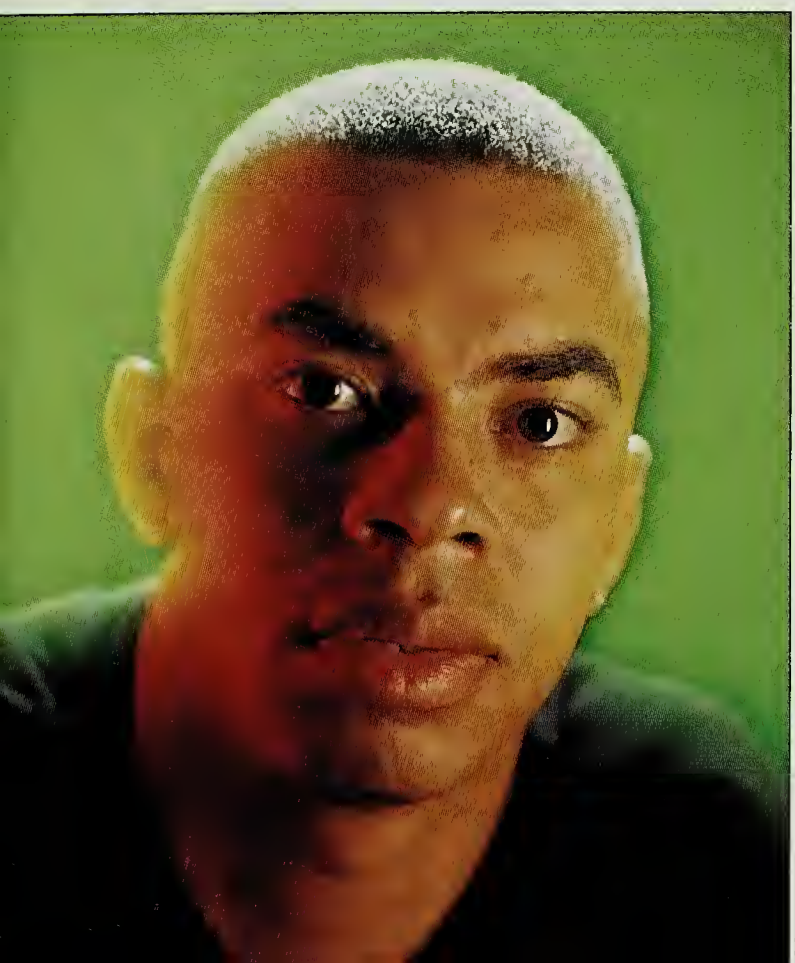
"Starting any type of business is a challenge, especially when you have such a tight window to come out with products and services you have on the Web," Hidary says.

As president of Earthweb, Hidary is its public representative. In addition to steering Earthweb's overall direction, he meets with clients, solicits investors, works closely with vendors and, in general, manages the company's long-term growth.

"Success in business is more correlated to your extracurricular activities than your curricular activities," says Hidary, who developed ColumbiaNet, the internal campus network for Columbia University's students and faculty, and who held a number of school offices while an undergrad. "They teach you organizational, interpersonal and management skills you can't learn in the classroom. School clubs have to stick to tight budgets and use guerrilla marketing techniques, like plastering posters all over campus at 3 a.m. We had to do the same with Earthweb."

*Continued on page 14*

**On the fast track to a career in chemical engineering, Paul Campbell cashed in his ticket to blaze trails on the Web.**



SONNY WILLIAMS



Continued from page 13

**PAUL CAMPBELL, 25**

**Independent contractor**

**Spiv, Turner Interactive ([www.spiv.com](http://www.spiv.com))**

**Atlanta**

**B.S., chemical engineering, Clemson**

**University, 1993**

**M.S., chemical engineering, Georgia**

**Institute of Technology, 1995**

Sometimes you think you know what you want. Then you actually get it. Paul Campbell had pursued a fast track to a thriving career in chemical engineering: four summer internships, a bachelor's and a master's degree. He had lined up a position at a major pharmaceuticals firm near his hometown of Myrtle Beach, S.C. He was all set to move back to the area.

That's when he decided to scrap it all and stake his future on the World Wide Web.

"I realized I didn't really want to do research, and that's where I was headed," he says. "But I knew if I wanted a long, happy life, I needed a career I would like."

His graduate coursework had led him into Fortran and Unix programming,

high-end CAD/CAM applications and computer-based simulations. He had cut his teeth on the Web creating a site for the Black Graduate Students Association, and he determined that he would like to do a job like that.

With little more than the one project under his belt, he and fellow engineering student Joycelyn Ward started Information Online, Inc. ([www.ioni.com](http://www.ioni.com)) to provide World Wide Web development services to local and national clients.

Using a variety of online tutorials, he taught himself HTML, CGI, Java, Shockwave and Director. To hone his new skills, he assigned himself a personal project, creating the Women's Online Network ([www.wonet.com](http://www.wonet.com)), a directory of links to women's resources on the Web. Next, he pursued the consulting position at Spiv, a way-cool interactive Webzine, to earn some extra money.

Campbell describes his role at Spiv as "computer handyman." His main objective is to keep content flowing at the site, which involves HTML programming, CGI scripting to create interactive content, monitoring the site's performance and providing hardware and software support to Spiv's editorial staff.

His workday begins around 9:30 a.m. with a firewall security check. Then, he posts the first of several daily updates to the server and strolls the halls to make himself available for spontaneous user problems and consultations. He spends afternoons surfing the Web for new ideas about how he can make Spiv's site run more efficiently and empower the editorial staff.

"It's not like a lot of jobs, where things are very static," Campbell says. "The technology changes fast, and you have to keep up with it, especially supporting a site that turns over a lot, like Spiv. And you have to be very analytical about how you solve problems and try to develop tools that make people's jobs easier."

Campbell landed the Spiv contract based on his aptitude and attitude rather than specific

skills, he says.

"I think that being self-taught shows that you can always adapt and pick up new things pretty quickly," he says.

**RUSSELL PERSSON, 28**

**Technical support specialist, SonicNet**

**([www.sonicnet.com](http://www.sonicnet.com))**

**New York City**

**B.A., English, Boston University, 1991**

Russell Persson's job brings the mosh pit to the Web site. Supporting *SonicNet*, a Webzine for new music fans, requires him to be part help desk, part troubleshooter, part programmer, part datacom manager and part roadie.

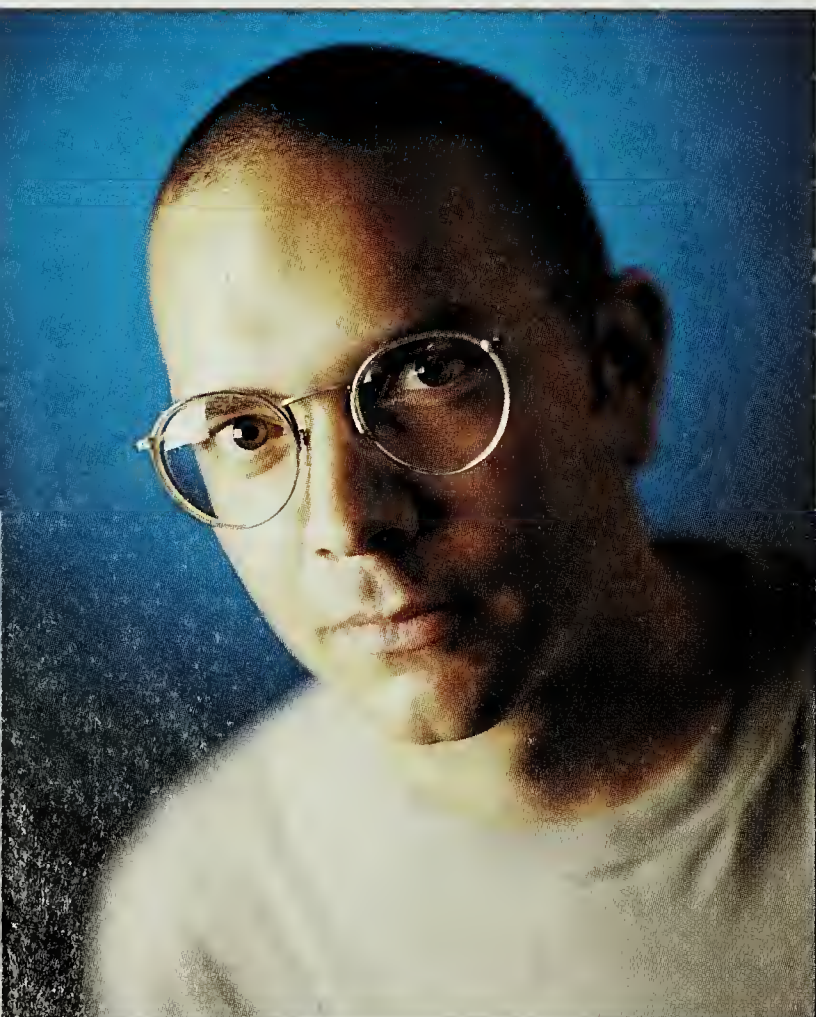
"Sometimes, it's very much like being on tour with a band," he says. "We're on the stage, working with the sound techs and the road crew. We're very much part of the event itself."

*SonicNet*, in addition to publishing original articles, regularly cybercasts live performances and concerts by the top indie punk and alternative bands. When the band hits the boards, Persson is the linchpin between the show and the ISDN line that carries the audio stream. He's the one who gets to spend hours connecting the line to the jack, programming the bit server, hooking it all together, and then figuring out what went wrong. "The ISDN line is something that generally never works," he quips.

For instance, at the Philadelphia show on the Warped Tour (this year's alternative to Lollapalooza), Persson thought he had everything running smoothly when he learned, just before showtime, that the stage was being moved. *SonicNet's* online audience was expecting to hear performances by NoFX, Fishbone, Dancehall Crashers and a number of other bands, but Persson couldn't run a new line from the ISDN jack to the new stage because the gates were already open and concertgoers had filled the place.

"The show is supposed to start in half an hour, and so I find another jack in a building about 100 yards from the new stage, and I rig it up," he says. "The bands are setting up their stuff and walking all over my lines, and I'm backstage with this

**For a guy who says he's really not hip, Russell Perrson has a pretty cool job at the music Webzine *SonicNet*.**



JOHN RAE



laptop and the bit server trying to reprogram the whole thing. It was nuts."

Persson had just learned how to connect ISDN lines the week before at another cybercast. He has, in fact, acquired all of his tech skills — from HTML and CGI to LAN diagnostics and troubleshooting to end-user software and hardware support — on the job. Prior to joining *SonicNet*, he was an associate editor at *Four Wheeler* magazine, where he taught himself HTML and launched the pub's Web site. When he first interviewed with the Silicon Alley new-media firm last February, he didn't have any professional Web experience on his resume.

"They were skeptical about whether I was qualified or not," Persson says. "And there actually has been a pretty steep learning curve, but I just convinced them that I would be able to pick up quickly anything I didn't know. I also convinced them that I have an interest in this stuff that makes the learning that much easier."

In addition to managing the cybercasts,



JACK KENNER

Amy Rowell didn't start using a computer until after high school. Now, she's responsible for FedEx's Web sites.

Persson also supports *SonicNet's* internal users as well as the Web site itself. Despite his background in journalism, he has decided for now to leave content production to *SonicNet's* editorial staff.

"I have to admit, I'm not that hip," he says. "Most of the time, I don't even know the bands we're cybercasting."

**AMY ROWELL, 34**

Programmer, network computing, Internet Technologies Group, Federal Express Corp. ([www.fedex.com](http://www.fedex.com))

Memphis

B.S., computer science, University of Mississippi, 1994

**A**my Rowell proves you don't have to be a GenX-er to take a leading role in corporate Web site development.

Unlike most of her fellow computer science students at the University of Mississippi, Rowell never used a computer in high school. She graduated in 1980, just before the desktop revolution.

Sixteen years later, Rowell is part of the team responsible for FedEx's internal and external Web sites. In August, just a little more than a year after joining the company

*Continued on page 16*

## Information Technology Graduates

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*Continued from page 15*

as a Visual Basic programmer, she launched a mission-critical Web application.

"It was a surprise to me, but deploying a full-scale business application on the Web is a lot more difficult than people realize, both technically and in terms of project management," Rowell says.

After graduating, Rowell says, she took a year to weigh her career options, accepting a systems administrator position in the University of Mississippi physics department. FedEx interviewed her on a campus visit, and once it made an offer, she says, "I realized I couldn't pass up the experience."

Rowell joined FedEx originally as a client application developer in the company's Client/Server Development Group. She was writing programs in Visual Basic and C, and conveyed to her boss that she was interested in working on the Net. Within less than six months, she was assigned to expand FedEx's fledgling intranet.

She redesigned the internal home page, adding CGI scripts and other user-orient-

ed features; developed a navigational tool that searches FedEx servers for company information; worked with various departments to design and implement departmental home pages; built an FTP site where users can download licensed versions of Netscape; and put a hierarchical intranet infrastructure in place that enables easy adds and updates.

Her biggest challenges, she says, have been coordinating the intradepartmental communication that building intranet apps requires and staying up-to-date on Web technologies. She says she already knew HTML, Unix, FTP and TelNet from school, but has been training to learn CGI scripting, Web server configuration and maintenance, site administration and Java.

"It's fun, because I feel like we're keeping up with some of the most interesting things in technology right now," Rowell says. "We're on the cutting edge, which really adds to my work, because things are changing every day, and keeping up is hard."

**ANTON PRASTOWO, 26**

**Vice president, Adjacency**  
([www.adjacency.com](http://www.adjacency.com))

**Madison, Wis.**

**B.S., electrical engineering, University of Wisconsin, 1992**

**W**ho says you have to be in a big city to land a really cool Internet development job? Anton Prastowo parlayed an interest in graphics and a technical background into a position as vice president of a cutting-edge Website development and consulting firm without even leaving his bucolic college town.

Prastowo, who joined Adjacency before it even had an official payroll, took a series of graphic arts and media production jobs in advertising agencies and for small publications after college, but wasn't sure exactly what he wanted to do. The only thing he knew for sure was that he did not want to be an electrical engineer.

"I didn't have a career plan in place; I was just mainly interested in getting in-

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One lucky winner will be contacted directly by us in the Spring of 1997.  
(All eligible entries must be postmarked no later than March 31, 1997.)

<b>1</b> In order of preference, please list the six companies you'd most like to work for. Then, please indicate the department where you'd like to work in each company you mentioned. (For departments, use the code that matches the departments in the list at the far right.)	<table><thead><tr><th>Company Name</th><th>Dept.</th></tr></thead><tbody><tr><td>1) _____</td><td>A.MIS</td></tr><tr><td>2) _____</td><td>B.Engineering</td></tr><tr><td>3) _____</td><td>C.Sales/Marketing</td></tr><tr><td>4) _____</td><td>D.Technical Support</td></tr><tr><td>5) _____</td><td>E.R&amp;D</td></tr><tr><td>6) _____</td><td>F.Other</td></tr></tbody></table>	Company Name	Dept.	1) _____	A.MIS	2) _____	B.Engineering	3) _____	C.Sales/Marketing	4) _____	D.Technical Support	5) _____	E.R&D	6) _____	F.Other		
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<b>5</b> How did you receive this issue?	<input type="radio"/> Picked it up in my school's placement office <input type="radio"/> Other _____																
<b>6</b> If you were told about this special issue by one or more faculty/staff member(s), what are their titles?	1) _____ 2) _____																
<b>7</b> How would you describe this special Issue:	<input type="radio"/> Better than any other career publication on campus <input type="radio"/> Comparable to any other career publication on campus																
<b>8</b> Which of the following locations are you most interested in for employment? (Please choose one.)	<input type="radio"/> In the area where I find the best offer <input type="radio"/> In the general area of where I attended college <input type="radio"/> In the area I call "home"																
<b>9</b> Make sure you tell us your name, permanent address and telephone number!	Name _____ Permanent Address _____ City _____ State _____ Zip _____ Phone (     ) _____																

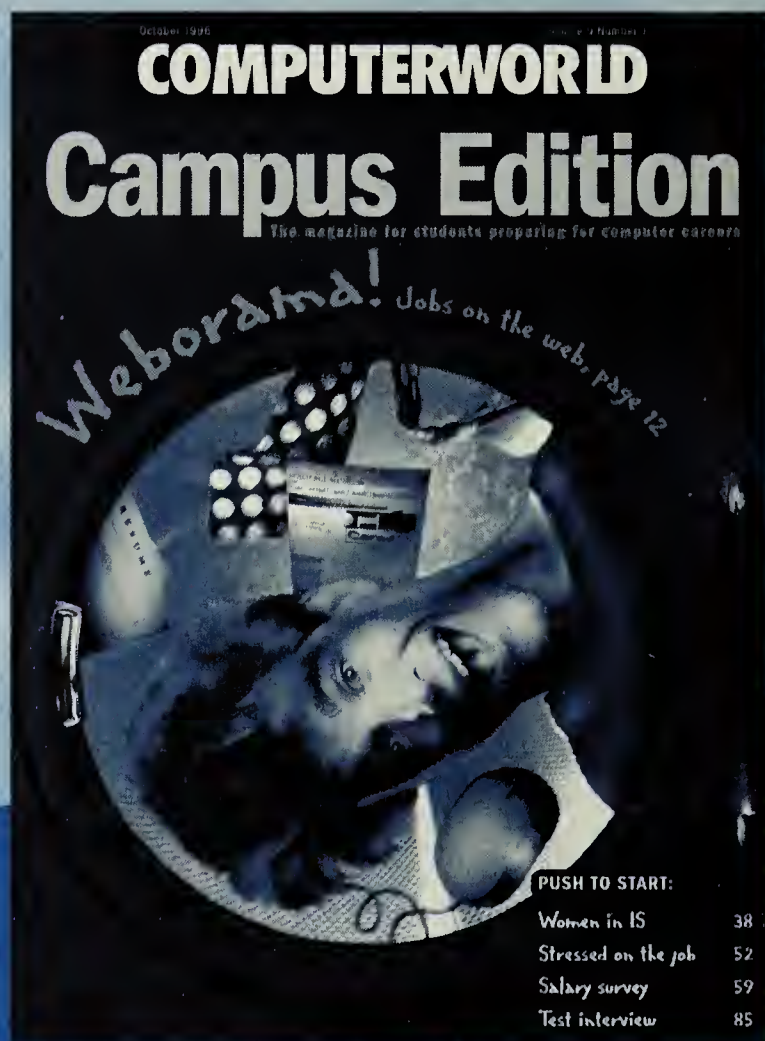


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volved in a start-up," he says. "I had worked in a bunch of places, but I was only getting to use one skill at a time. Here, I get to wear many hats, and I have a lot more growth potential."

Prastowo's role at Adjacency, located in a former Greyhound bus station in a neighborhood of converted factories, is lead jack-of-all-trades. He educates his clients' marketing and public relations staffs on the Web's technological capabilities, translates their requests back to his lead programmer, manages site development and implementation projects, and writes Perl and CGI scripts. He manages five people in content production, programming and systems support, and he provides project management for clients Motorola Cellular Subscriber Group and Kemper Funds. Other clients Adjacency has built its online reputation on include Reebok International Ltd., Rollerblade, Inc. and PowerFood, Inc., makers of PowerBar.

So how did Prastowo get his foot in the



MICHAEL ABRAMSON

**Anton Prastowo didn't have a set career plan, but he knew he wanted to work for a start-up. He got his wish on the Web.**

door at Adjacency? He says his engineering degree gave him the requisite background in Unix and the 'net, as well as the conceptual skills to map out technical solutions to business challenges, although he says he is a better "technical manager than techie." His experience working in art production envi-

ronments after graduation also was key to landing this job.

The most perplexing parts of his nascent career are learning how to conduct himself with clients and setting the tone for his direct reports. "You have to be able to conduct yourself civilly," he says. "For instance, one of our clients wanted a dozen animations on a single Web page. Not only would that take users forever to load, but there was just the tackiness of it. But you want to be polite."

And, of course, the job has its perks. Many of the very hip companies on Adjacency's roster have agreed to a "cool stuff clause" in their contracts. "We work it out so

we can get their products at cost," Prastowo explains. "We targeted lifestyle companies from the beginning because we like the stuff they make. It's always nicer to work for something you're really into." ☼

*Goff is a freelance writer in New York.*

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## WhoWhere, Inc.

### Business development manager

**Richard Rock**



JOHN HARDING

**Mountain View,  
Calif.**

**Age: 24**

**B.S. Finance,  
University of Idaho  
MBA, Stanford  
University**

Richard Rock's company helps people find each other. No, WhoWhere isn't a dat-

ing service; it's an Internet directory company. If you're looking for a friend's E-mail address or you want to see if someone is online so you can call them on "Internet telephone," Rock's company is a place to start.

As business development manager at the start-up, which be-

gan offering E-mail, yellow-page and white-page services in November 1995, Rock says his job "spans from product marketing to project management." That means he helps develop online marketing campaigns and promotional materials, and he works with a team of developers to create the look and feel of the company's Web site ([www.whowhere.com](http://www.whowhere.com)). He also works with engineers and developers on new products, such as community-based searching, new interfaces and data sets.

All that, in just 70 to 80 hours a week.

"I have a lot of responsibilities in a lot of different areas," Rock acknowledges. "It takes a strong commitment, but, because everything is so new, it's a fun place to work. You never get bored in a job like this."

Rock found this niche in the homestretch of his MBA program. As part of a class in marketing on the Internet, he helped work out some business development plans for the company, which, then in its launch phase, needed to find a way to attract and sign up users. (Using the services is free; revenue comes from ads on the Web site and licensing of the E-mail search engine.) Rock's work impressed the company so much that it offered him a job. For his time and effort, he is paid more than \$55,000 a year in addition to stock options.

— Stewart Deck

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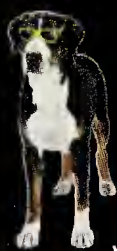


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# In the eye of the beholder

What makes an ideal employer?

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Career stability?

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Whatever attributes you hope for in an employer, you can find them in *Computerworld's* ranking of the 100 Best Places to Work in IS.

Based on a survey of more than 1,100 IS organizations in 20 industries, we selected the top 100 companies based on benefits, salaries, use of technology and

other factors (see methodology,

page 28). It comes as no

surprise that four of the top five Best Places to Work are

computer companies.

(Sears, Roebuck and

Co. ranked fourth.) In

all, seven computer companies made the list. These com-

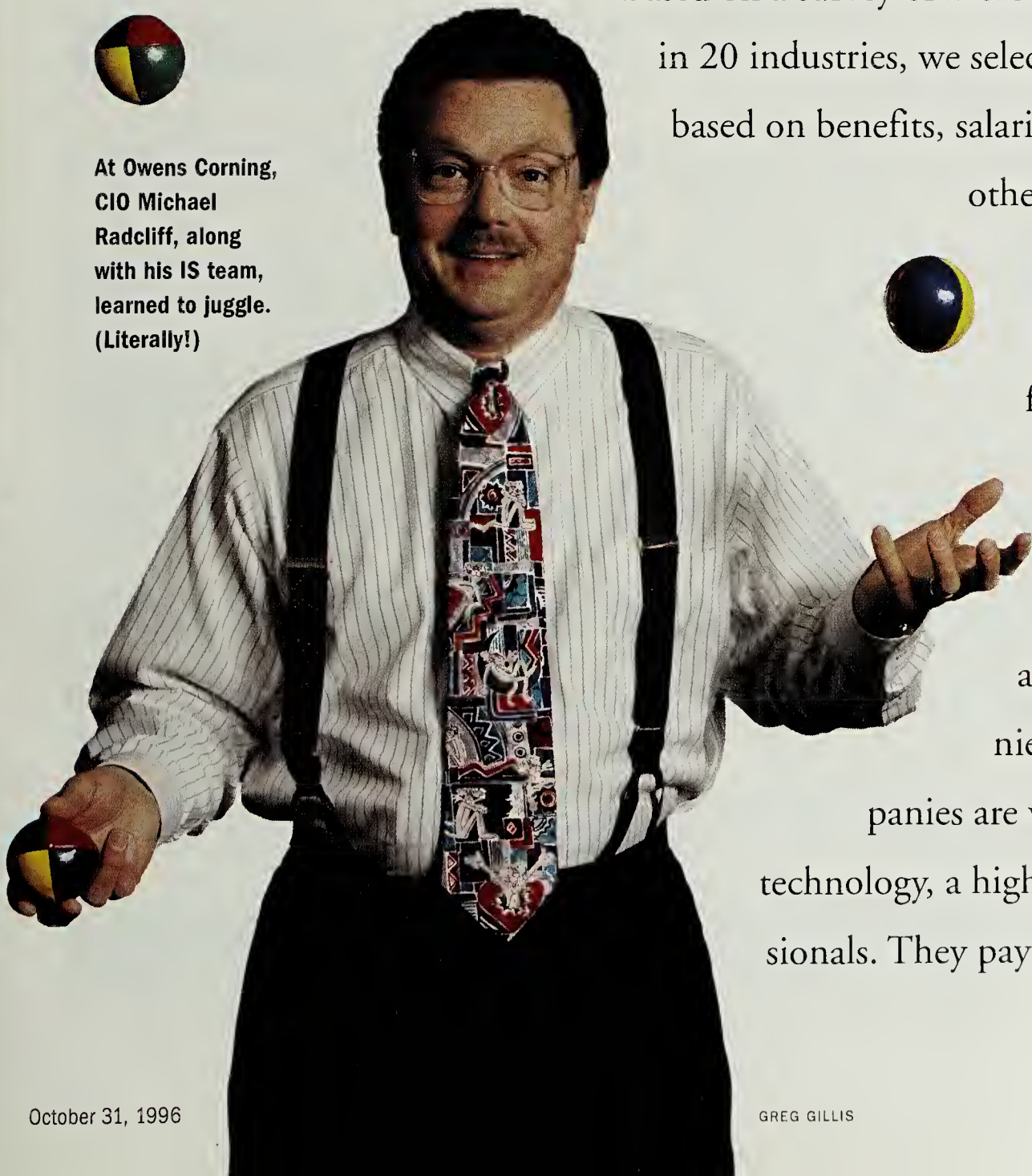
panies are working on cutting-edge

technology, a high priority among IS professionals. They pay well and typically offer

*Continued on page 22*



At Owens Corning, CIO Michael Radcliff, along with his IS team, learned to juggle. (Literally!)





## All in the Averages

### IS employee training provided by the Best Places to Work

Training	Offered internally	Offered externally
Information technology	38%	41%
Interpersonal skills and leadership	9%	3%
Personnel hiring, job design, developing, goal setting	8%	2%
Functional business (marketing, finance, operations, etc.)	8%	4%
Diversity (includes race, gender, etc.)	4%	1%
Project management	3%	3%

#### Courses

**Top three IT courses** taken by IS personnel in the last year:

1.	Client/server
2.	Networking
3.	Unix

**Top three non-IT courses** taken by IS personnel in the last year:

1.	Project management
2.	Leadership
3.	Personnel management

Source: Computerworld's 1996 Best Places to Work survey

many opportunities for growth, too.

Take top-ranked Cisco Systems, Inc. The \$3 billion internetworking company

blows away the averages. Last year, Cisco promoted 40% of its IS staff, compared with the 10.4% average among the 100

Best Places to Work. The company's salary increases for 1995 averaged 8%, compared with 3.3% overall. And it offered 13 training days last year, vs. the average of nine for the other companies.

In this day and age of job hopping, such rewards and benefits are required to attract — and keep — the best and brightest IS professionals. But being a Best Place to Work also requires a strong corporate culture that IS staff can identify with.

It all depends on your point of view, too. Some companies on the list would be labeled "bad" places to work in certain circles. Caterpillar, Inc., for example, ended a bitter 17-month strike by the United Auto Workers last year. But when it comes to the IS shop, its statistics put the heavy equipment manufacturer 15th on our list.

Whatever is most important to you, we hope that our ranking helps you zero in on your ideal employer. ☼

*Rayner is a former Special Projects editor at Computerworld.*

## The 100 Best Places to Work in IS

Rank	Company	Industry	New IS hires in 1995	IS Staff Changes Projected 1996	Average Salary Increase Projected 1996	IS Staff Diversity Minorities
1	Cisco Systems, Inc.	Computer Hardware, Software*	60	20%+	10%+	20% to 39%
2	Informix Software, Inc.	Computer Hardware, Software	NA	20%+	10%+	1% to 19%
3	Computer Associates International, Inc.	Computer Hardware, Software	1,732	20%+	10%+	20% to 39%
4	Sears, Roebuck and Co.	Wholesale, Retail & Distribution	130	1% to 4%	7% to 9%	20% to 39%
5	Xerox Corp.	Computer Hardware, Software	75	10% to 20%	10%+	20% to 39%
6	Massachusetts Mutual — The Blue Chip Co.	Insurance	100	10% to 20%	10%+	1% to 19%
7	Price Waterhouse LLP	Professional Services & Consulting	1,169	20%+	10%+	1% to 19%
8	Southwest Airlines Co.	Transportation Services	60	20%+	7% to 9%	1% to 19%
9	American Management Systems, Inc.	Professional Services & Consulting	1,800	10% to 20%	10%+	1% to 19%
10	Enserch Corp.	Mining, Forest Products, Oil & Gas	40	5% to 9%	7% to 9%	20% to 39%
11	The Home Depot, Inc.	Wholesale, Retail & Distribution	47	5% to 9%	7% to 9%	1% to 19%
12	University of Miami	Education	15	1% to 4%	4% to 6%	50% to 74%
13	First NBD Chicago Corp.	Financial Services & Banking	100	10% to 20%	7% to 9%	20% to 39%
14	University of Wisconsin at Stevens Point	Education	4	20%+	4% to 6%	0%
15	Caterpillar, Inc.	Industrial Equipment	150	5% to 9%	7% to 9%	20% to 39%
16	Key Services Corp.	Financial Services & Banking	187	10% to 20%	7% to 9%	1% to 19%

\* Includes related products

NA = Not available



# Set Your Career In Motion

**Y**ou probably already know a great deal about the telecommunications industry. But you might not know that this year, Northern Telecom brought together all of its resources under one **global** banner – Nortel. As we enter our second century of business, this change brings a single corporate identity to the world's most broadly diversified developers of communications products, systems and networks.

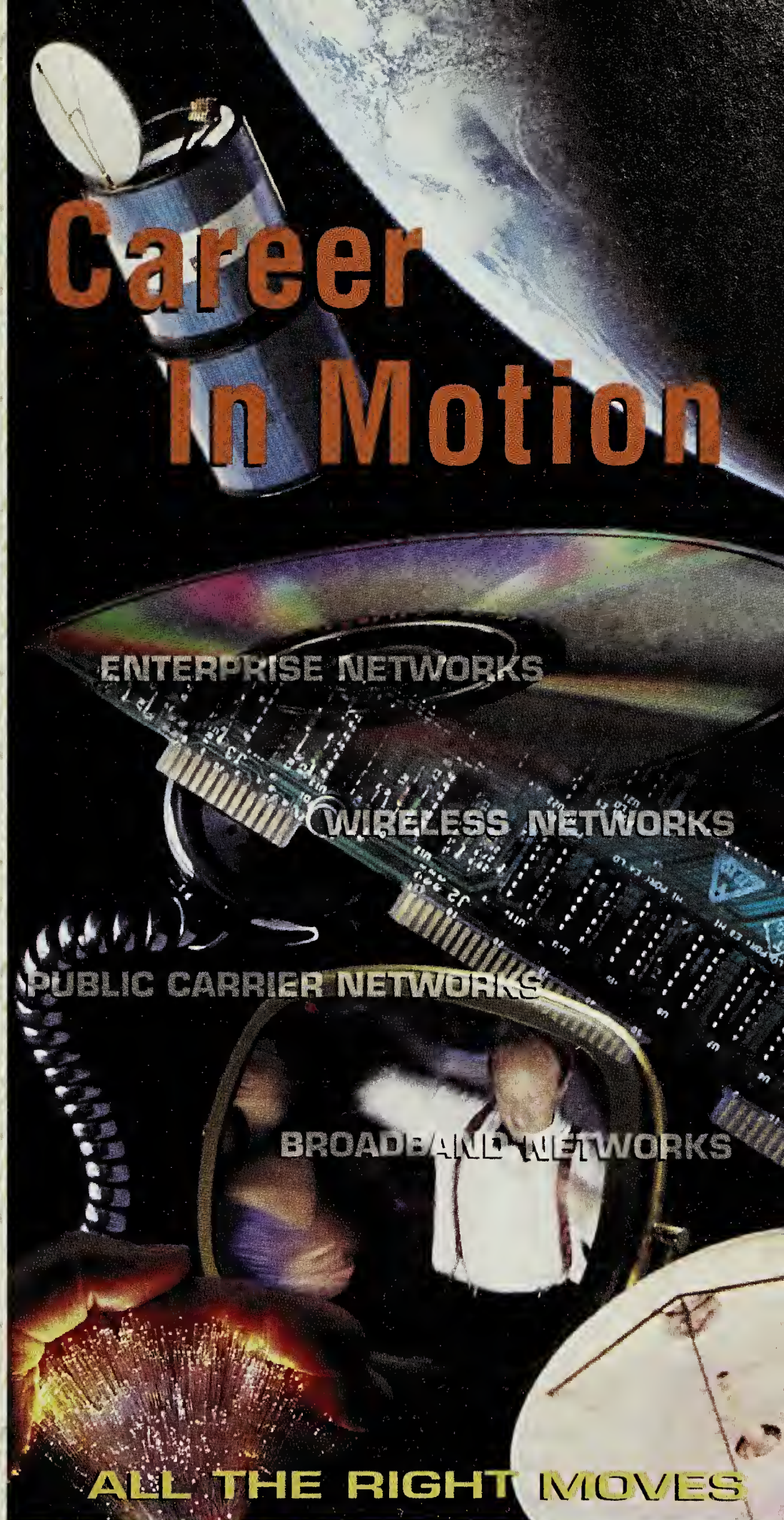
Our strategy is to focus our expertise on **networks** – designing, building and integrating the world's information, entertainment and communications networks. With over 63,000 employees – 17,000 working in R&D – and sales, marketing, manufacturing and research operations in over 90 countries, Nortel truly is 'A World of Networks.'

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- |             |                      |                |
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## The 100 Best Places to Work in IS

Rank	Company	Industry	New IS hires in 1995	IS Staff Changes Projected 1996	Average Salary Increase Projected 1996	IS Staff Diversity Minorities
17	U.S. Arms Control & Disarmament Agency	Government	2	0%	1% to 3%	50% to 74%
18	Crown Central Petroleum Corp.	Mining, Forest Products, Oil & Gas	5	10% to 20%	4% to 6%	1% to 19%
19	Fifth Third Bancorp.	Financial Services & Banking	80	10% to 20%	7% to 9%	1% to 19%
20	E-Systems, Inc.	Appliances, Electronics & Electrical Equipment	15	5% to 9%	7% to 9%	1% to 19%
21	Entergy Corp.	Telecommunications & Utilities	35	10% to 20%	10%+	1% to 19%
22	Tech Data Corp.	Wholesale, Retail & Distribution	100	10% to 20%	4% to 6%	20% to 39%
23	Sherwin-Williams Co.	Chemicals, Pharmaceuticals & Cosmetics	35	1% to 4%	4% to 6%	1% to 19%
24	Campbell Soup Co.	Food & Beverage	20	1% to 4%	4% to 6%	1% to 19%
25	PacifiCare Health Systems	Health Care	90	10% to 20%	4% to 6%	40% to 49%
26	Amgen, Inc.	Chemicals, Pharmaceuticals & Cosmetics	40	5% to 9%	4% to 6%	NA
27	AT&T Corp.	Telecommunications & Utilities	113	1% to 4%	10%+	1% to 19%
28	Maytag Corp.	Appliances, Electronics & Electrical Equipment	32	10% to 20%	4% to 6%	1% to 19%
29	Duff & Phelps Credit Rating Co.	Financial Services & Banking	4	20%+	7% to 9%	20% to 39%
30	Amoco Corp.	Mining, Forest Products, Oil & Gas	204	1% to 4%	4% to 6%	20% to 39%
31	Mellon Bank Corp.	Financial Services & Banking	198	0%	4% to 6%	1% to 19%
32	State Street Bank & Trust Co.	Financial Services & Banking	120	10% to 20%	10%+	1% to 19%
33	U.S. Dept. Housing & Urban Development	Government	103	1% to 4%	4% to 6%	50% to 74%
34	Owens Corning	Metals, Building Materials & Glass	18	-5% to -9%	10%+	1% to 19%
35	Outboard Marine Corp.	Industrial Equipment	6	20%+	4% to 6%	1% to 19%
36	First Bank System, Inc.	Financial Services & Banking	155	5% to 9%	4% to 6%	1% to 19%
37	Anheuser-Busch Cos.	Food & Beverage	NA	20%+	4% to 6%	20% to 39%
38	Avon Products, Inc.	Chemicals, Pharmaceuticals & Cosmetics	54	5% to 9%	7% to 9%	20% to 39%
39	Pepsico, Inc.	Food & Beverage	7	1% to 4%	4% to 6%	1% to 19%
40	University of California at Davis	Education	19	20%+	4% to 6%	50% to 74%**
41	Tyco International Ltd.	Appliances, Electronics & Electrical Equipment	1	1% to 4%	7% to 9%	1% to 19%
42	Caliber Technology, Inc.	Transportation Services	120	5% to 9%	4% to 6%	1% to 19%
43	Unum Corp.	Financial Services & Banking	200	0%	10%+	1% to 19%
44	Fleet Services Corp.	Financial Services & Banking	246	10% to 20%	4% to 6%	1% to 19%
45	SunTrust Service Corp.	Financial Services & Banking	114	5% to 9%	10%+	1% to 19%
46	Wal-Mart Stores, Inc.	Wholesale, Retail & Distribution	251	1% to 4%	10%+	NA
47	U.S. Healthcare, Inc.	Insurance	105	20%+	4% to 6%	1% to 19%
48	Farmland Industries, Inc.	Wholesale, Retail & Distribution	6	0%	4% to 6%	1% to 19%
49	Minnesota Mutual Life Insurance	Insurance	35	5% to 9%	4% to 6%	1% to 19%

\*\*Includes women



# If you want to see the technology coming, stick your head in the right place.

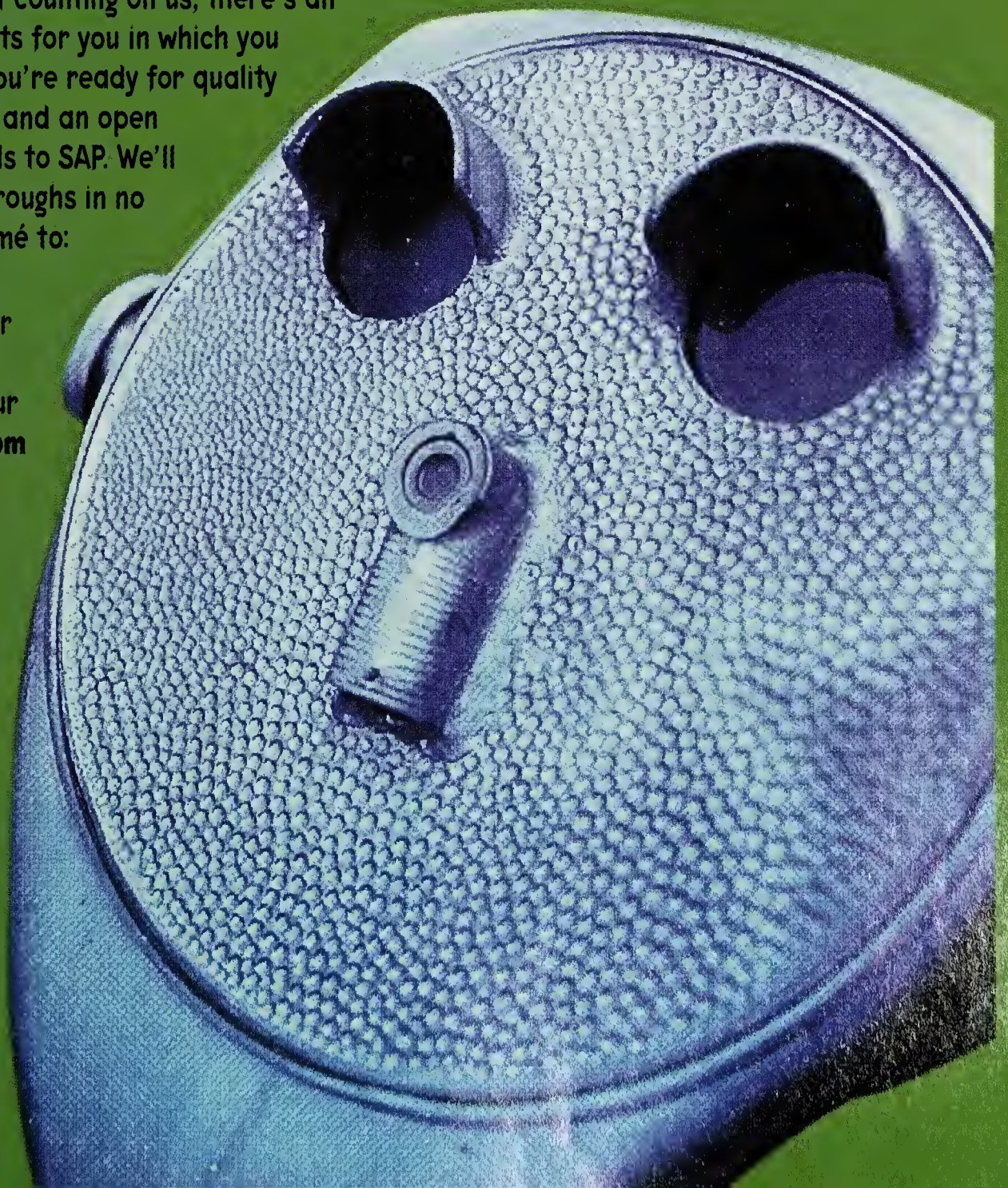
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# The 100 Best Places to Work in IS

Rank	Company	Industry	New IS hires in 1995	IS Staff Changes Projected 1996	Average Salary Increase Projected 1996	IS Staff Diversity Minorities
50	United HealthCare Corp.	Health Care	450	20%+	4% to 6%	20% to 39%
51	The Equitable Cos.	Financial Services & Banking	200	5% to 9%	7% to 9%	20% to 39%
52	Barnett Technologies, Inc.	Financial Services & Banking	130	5% to 9%	4% to 6%	20% to 39%
53	Deloitte & Touche	Professional Services & Consulting	40	5% to 9%	4% to 6%	1% to 19%
54	Microsoft Corp.	Computer Hardware, Software	293	20%+	7% to 9%	1% to 19%
55	Interpublic Group of Cos.	Professional Services & Consulting	15	1% to 4%	4% to 6%	1% to 19%
56	Willamette Industries, Inc.	Wholesale, Retail & Distribution	33	5% to 9%	7% to 9%	1% to 19%
57	North Dakota State University at Fargo	Education	3	10% to 20%	1% to 3%	0%
58	Consolidated Freightways, Inc.	Transportation Services	70	5% to 9%	1% to 3%	1% to 19%
59	Parker Hannifin Corp.	Metals, Building Materials & Glass	10	5% to 9%	NA	1% to 19%
60	Tosco Corp.	Mining, Forest Products, Oil & Gas	20	10% to 20%	4% to 6%	1% to 19%
61	Kansas State University at Manhattan	Education	NA	1% to 4%	4% to 6%	20% to 39%
62	University of Notre Dame	Education	10	5% to 9%	1% to 3%	20% to 39%
63	Cone Mills Corp.	Apparel & Textile	6	1% to 4%	4% to 6%	1% to 19%
64	Bowling Green State University	Education	NA	1% to 4%	4% to 6%	0%
65	Diamond Shamrock, Inc.	Mining, Forest Products, Oil & Gas	3	0%	4% to 6%	20% to 39%
66	Chrysler Corp.	Automotive	NA	1% to 4%	10%+	1% to 19%
67	Honeywell, Inc.	Appliances, Electronics & Electrical Equipment	40	0%	4% to 6%	1% to 19%
68	AMP, Inc.	Appliances, Electronics & Electrical Equipment	48	5% to 9%	4% to 6%	1% to 19%
69	Board of Governors, Federal Reserve System	Government	60	1% to 4%	1% to 3%	20% to 39%
70	Booz Allen & Hamilton, Inc.	Professional Services & Consulting	30	5% to 9%	7% to 9%	50% to 74%
71	Phelps Dodge Corp.	Mining, Forest Products, Oil & Gas	7	20%+	4% to 6%	1% to 19%
72	Bear Stearns & Co.	Financial Services & Banking	83	10% to 20%	10%+	20% to 39%
73	Teachers Insurance Annuity Association**	Insurance	79	1% to 4%	4% to 6%	40% to 49%
74	Northwestern Mutual Life Insurance Co.	Insurance	41	1% to 4%	4% to 6%	1% to 19%
75	Comerica, Inc.	Financial Services & Banking	62	5% to 9%	4% to 6%	1% to 19%
76	Bausch & Lomb, Inc.	Health Care	25+	-1% to -4%	4% to 6%	1% to 19%
77	Champion International Corp.	Mining, Forest Products, Oil & Gas	27	1% to 4%	4% to 6%	1% to 19%
78	Rohm & Haas Co.	Chemicals, Pharmaceuticals & Cosmetics	6	1% to 4%	1% to 3%	1% to 19%
79	First Commerce Corp.	Financial Services & Banking	26	5% to 9%	7% to 9%	NA
80	Florida Atlantic University	Education	7	1% to 4%	1% to 3%	20% to 39%
81	Detroit Edison Co.	Telecommunications & Utilities	20	1% to 4%	4% to 6%	20% to 39%
82	Reynolds Metals Co.	Metals, Building Materials & Glass	30	5% to 9%	4% to 6%	1% to 19%

\*\*Teachers Insurance Annuity Association - College Retirement Equities Fund



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# The 100 Best Places to Work in IS

Rank	Company	Industry	New IS hires in 1995	IS Staff Changes Projected 1996	Average Salary Increase Projected 1996	IS Staff Diversity Minorities
83	State of W. Virginia, Dept. of Admin.	Government	2	1% to 4%	4% to 6%	1% to 19%
84	U.S. Department of Justice	Government	5	0%	4% to 6%	50% to 74%
85	Standard Commercial Corp.	Tobacco	4	0%	NA	1% to 19%
86	Lithonia Lighting, Inc.	Appliances, Electronics & Electrical Equipment	2	5% to 9%	4% to 6%	1% to 19%
87	Pacific Telesis Group	Telecommunications & Utilities	100	5% to 9%	4% to 6%	20% to 39%
88	EMC Corp.	Computer Hardware, Software	37	5% to 9%	4% to 6%	20% to 39%
89	The Turner Corp.	Construction	2	5% to 9%	4% to 6%	1% to 19%
90	University of Delaware at Newark	Education	3	0%	4% to 6%	1% to 19%
91	Fluor Corp.	Construction	NA	NA	4% to 6%	1% to 19%
92	State of Alabama	Government	10	1% to 4%	7% to 9%	1% to 19%
93	Phillips-Van Heusen Corp.	Apparel & Textile	22	1% to 4%	4% to 6%	1% to 19%
94	General Mills, Inc.	Food & Beverage	25	0%	4% to 6%	1% to 19%
95	Computer Task Group	Professional Services & Consulting	3,447	10% to 20%	4% to 6%	1% to 19%
96	Hewlett-Packard Co.	Computer Hardware, Software	745	5% to 9%	7% to 9%	20% to 39%
97	Sallie Mae Servicing Corp.	Financial Services & Banking	75	0%	4% to 6%	20% to 39%
98	People's Bank	Financial Services & Banking	15	5% to 9%	4% to 6%	20% to 39%
99	AMR Corp., The Sabre Group	Transportation Services	778	5% to 9%	7% to 9%	20% to 39%
100	National Semiconductor Corp.	Appliances, Electronics & Electrical Equipment	15	10% to 20%	7% to 9%	20% to 39%

## Methodology

**C**omputerworld's 1996 Best Places to Work ranking captures the essence of what it takes to be an outstanding IS organization. Various criteria were used in our weighted-average formula; all of them play an important role in creating an environment where IS professionals can thrive.

We started with last year's 100 ranking and added the 1995 Fortune 500 list, which includes both manufacturing and service companies. In addition, we included large government

agencies, both state and federal, colleges and universities and about 40 of the largest management consulting and systems integration firms. In all, *Computerworld* surveyed more than 1,100 organizations.

We asked these organizations' IS managers 31 questions covering a wide range of employee-related topics: benefits, salary levels, salary increases, staff growth, staff promotions, employee turnover rates, training budgets and number of training days, use of tech-

nology and diversity in the workplace.

These nine topics were each given a numerical value, which were then summed, using a weighted-average formula, to determine the total score for the organization. These scores then became the basis for ranking the organizations and selecting the final 100 Best Places to Work.

Pro Temp Partners, a market research firm in Weston, Mass., conducted the survey in January and February 1996.



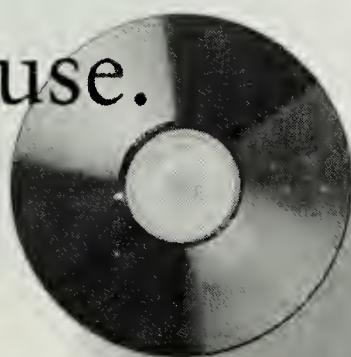
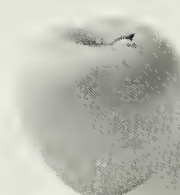
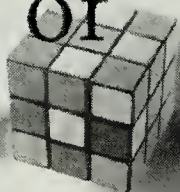
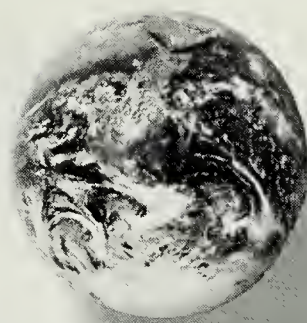
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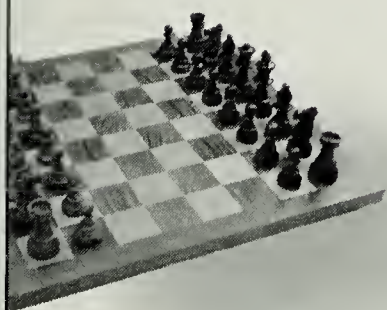
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# Experience preferred

It takes more than a degree to land a job. You need real-world experience.

By Thomas Hoffman

**S**amantha Arnette wasn't just talkin' trash when she told job recruiters she'd gained real-world work experience while attending James Madison University.

As an intern earning \$9 an hour, Arnette spent the summer of 1995 coding a multimedia training program for the Hampton Roads (Va.) Sanitation District, a public agency that hauls trash and recyclables for Virginia Beach residents. Arnette used Macromedia, Inc.'s Director V4.0 interactive tool kit to create the training system, which shows customer service reps how to do anything from toggle between customer information screens to answer a call from a deadbeat client who hasn't paid a bill in six months.

That kind of experience paid off big for Arnette when corporate recruiters came calling at the university in Harrisonburg, Va. After interviewing earlier this year with a bevy of bellwether companies (including Bell Atlantic Corp., Andersen Consulting and America Online), Arnette accepted a job offer from Perot Systems Corp.

"All of the companies I interviewed with asked about my internship," says Arnette, who started in June as an associate in Perot Systems' Reston, Va., offices. "It definitely made a difference in helping me get a foot in the door."



James Madison University grad Samantha Arnette says her summer internship as a programmer definitely helped her get a foot in the door when she interviewed for jobs.

Indeed, to get an information systems job in today's market, you've got to have some experience. And not just in slinging burgers at Wendy's or painting houses. "I would add points to a candidate who built their own Web page, joined a computer club — anything that shows they went the extra mile to add to their portfolio," says Johnson Fisher, a software team manager at Roberts Express, Inc. in Akron, Ohio. Fisher helps the freight service recruit young IT professionals. (For ideas on gaining experience, see "Trade tips" box, page 35.)

Wenyu Wang fit that bill. A software programmer at Roberts Express since May, Wang impressed Fisher and the recruiting team with his experience using geographic information system (GIS) tools.

*Continued on page 33*



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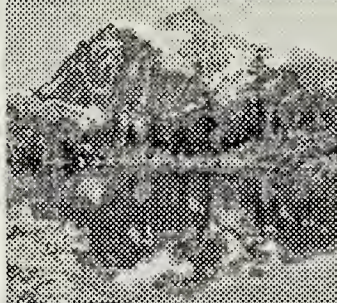
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- 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services

- 90. Computer/Peripheral Dealer/Dist./Retailer
- 95. Other \_\_\_\_\_

(Please Specify)

**2. TITLE/FUNCTION (Circle one)**

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- 19. Chief Information Officer/Vice President/Asst. VP IS/MIS/DP Management
- 21. Dir./Mgr. MIS Services, Information Center
- 22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech Planning, Admin. Services
- 23. Dir./Mgr. Sys. Development, Sys. Architecture
- 31. Programming Management, Software Developers

- 41. Engineering, Scientific, R&D, Tech. Mgt.
- 60. Sys. Integrators/VARs/Consulting Mgt.

**CORPORATE MANAGEMENT**

- 11. President, Owner/Partner, General Mgr.
- 12. Vice President, Asst. VP
- 13. Treasurer, Controller, Financial Officer

**DEPARTMENTAL MANAGEMENT**

- 51. Sales & Mktg. Management
- 70. Medical, Legal, Accounting Mgt.

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*Continued from page 31*

In his graduate coursework in urban planning applications at Cleveland State University in Ohio, Wang used GIS tools and gained new knowledge of SQL and database programming. That experience helped Wang land the job with Roberts, Fisher says. "Even though we don't do a lot of GIS work here with our fleet, [Wang's] skills attracted us," Fisher says.

#### What companies look for

As Wang's experience shows, what matters less is your specific area of experience. Most companies want candidates with broad-based training in anything from Cobol programming to C++, says Julie Schulke, a human resource generalist in information technologies at the Plymouth, Minn., office of Carlson Cos., a marketing service to the hospitality industry. "Those skills are easily transferable — if you learn one technology well, you can usually learn another," Schulke adds.

"The first thing that always pops out

Tutoring students in microcomputing while pursuing a second major in marketing helped Eric Scheel land his IS internship.

[during an interview] is people who show initiative," confirms Randy Buck, a systems recruiter at Nationwide Life Insurance Co. in Columbus,

Ohio, which had about 30 entry-level IS interns this year.

What differentiates among job-seekers are strong interpersonal skills and demonstration of ability to be a team player — even in the classroom. "We're looking for people with high energy, good teamwork skills and good communications skills," Schulke says.

That's because as IS professionals work more intimately with end users, they must be able to explain technology in layman's terms.

"If an intern has to tell end users that Windows isn't going to be up for

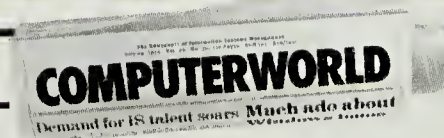
*Continued on page 35*



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## Trade tips

**Recruiters and recent grads recommend the following ways to gain real-world experience to help make yourself more marketable after graduation:**

► **Do an internship**

This is usually an entry-level programming job at a company or public agency for a semester or summer. Some offer no pay but great experience; others pay about \$9 an hour. Some offer academic credits.

► **Find a co-op**

A type of college or community-sponsored cooperative program that gives you a temporary job. Some are paid.

► **Enter a rotation**

Another entry-level opportunity, typically offered by companies, in which recruits are "rotated" among various business departments to gain a range of experi-

ence. These are usually paid positions.

► **Take extra courses** in communications or interpersonal skills.

► **Join a computer club** or assist in the school's computer lab.

► **Take an interviewing course** offered by your career services department.

► **Take advantage of as many opportunities** as you can before you're an upperclassman.

► **Read industry trade publications** to better understand the industry you'll be working in.

— Thomas Hoffman

*Continued from page 33*

a day, they'd better be able to explain it in a way that people will understand and accept," says Karen Hiller, manager of technical recruiting at Eddie Bauer, Inc. The Redmond, Wash.-based retailer doesn't hire too many entry-level IS staffers, but it does offer six-month internships within its local-area network and desktop support groups. Those internships require some experience in networking, LANs or programming, Hiller says.

### Upperclass challenge

Even though recruiters recommend students begin seeking out internships when they're freshmen and sophomores, it's never too late to find one. Ask Eric Scheel.

Scheel, an MIS student, was entering his junior year at Iowa State University in Ames and still didn't have any real-world experience. Like many college students, Scheel recalls, he "had a lot of growing up to do, and I didn't look as hard for an in-

*Continued on page 37*




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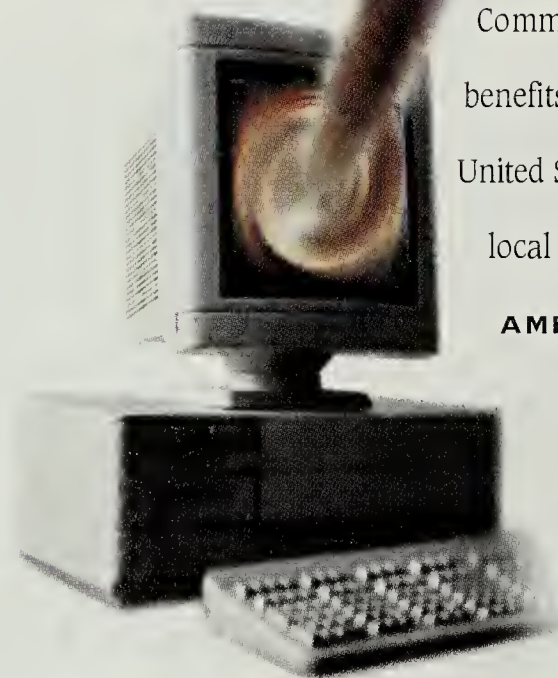
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Continued from page 35

ternship as I could have." But he did tutor students in an introductory micro-computing course, and while he was pursuing a second major in marketing, he used that experience to land an internship with the Iowa Small Business Development Center. There, he built a database of every business in Ames, Iowa, using Microsoft Corp.'s Access tool kit.

That experience got him on the interviewing schedule at Carlson Marketing Group in Plymouth, Minn., a division of Carlson Cos. He joined the marketing group as an associate programmer in June 1995. Since then, he has impressed his boss by developing his own World Wide Web site on his own time (<http://www.he.tdl.com/~scheel>), enabling him to land some HTML programming work for some of Carlson's customers. "I'm not too subtle, but it worked," says Scheel, who has since been promoted to programmer.

An internship was effective for Fred



Fred Stanley's summer internship as a programmer at United Parcel Service took the job-hunting pressure off.

Stanley, too. As a junior at the State University of New York at Utica-Rome in 1991, Stanley heard from a friend that United Parcel Service of America, Inc. had two openings for summer interns in its Mahwah, N.J., data center. He got one and spent

most of it testing a DOS-based application that corrects wrong addresses on customer parcels, which UPS continues to use. On his last day, UPS offered him a job upon graduation.

"That took a lot of the pressure off," says Stanley, who, in his role as a programmer/analyst at UPS, now screens incoming job candidates for the carrier. "A lot of my friends were going to job fairs, and I already knew where I was going." \*

Hoffman is Computerworld's senior editor, IS management.

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### Technical Consultant

Accountable for the delivery of high quality technical solutions which advance clients most challenging business opportunities. Provide expert technical consulting to clients and IT Management proposing and integrating new and emerging technologies into Corporate businesses and systems. Must have demonstrated expert proficiency in one of the following: Objectview, Oracle, Infrastructure, NOS, Multiprocessing Server, Remote Access, WAN/Routers, LAN, Powerbuilder, C++, CASE Tools, Visual Basic, Internet-WEB Server, WWW.

### Application Consultant

Accountable for providing business consulting services on engagements requiring an in-depth business knowledge of utility (e.g. Sales/Marketing, Utility Customer Services processes, Human Resources, Financial Management, Materials Management, Planning & Forecasting, Energy Management, etc.). Should have experience in the preparation of business cases, cost benefit and impact analysis studies. Must have high analytical and complex problem solving abilities and experience in business process re-engineering. Demonstrated facilitation skills (JAD/estimating), prototyping, system integration and migration.

### Application Developer/Designer

Design and recommend IT solutions to address business needs. Required analytical and complex problem solving ability. Candidate should have some exposure to facilitation skills (JAD/estimating) and prototyping. Desirable knowledge of application design methods, and integrated CASE tools.

### PC/LAN Specialist

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### Architect

Accountable for the design and development of architecture aligned with the company's business objectives in a quickly changing environment. Responsible for the development of migration/implementation strategy/solutions to turn business architecture into a reality. Must have highly analytical and complex problem solving ability, strong judgement and strong business understanding and experience. Must have experience in the systems life cycle development techniques, quality improvement measures, project planning, and project cost estimation.

**Application Process Manager:** Accountable for managing the overall development process to ensure application quality and efficient delivery of business systems for client/server, midrange, and mainframe applications. Develop information solution development and delivery processes. Develop, implement and enforce information solution development quality control measures. Set and enforce application development standards & procedures. Develop competencies within IT for accurate estimates for project deliverables. Must have ability to create synergistic teamwork and provide leadership for project team members. Must have demonstrated working knowledge of client/server environment, experience in project planning, estimating, process quality management, and improvement, and must possess expert knowledge of system development process and a high level understanding of business processes.

**Data:** Strong experience in data modeling, data model integration and migration. Experience in data quality management/data quality assessment, root cause analysis, and data quality improvement solution development. Strong knowledge of data technology (i.e. DBMS, data replication, data mining, visualization, object oriented, groupware, and web technologies, data security, etc.) Demonstrated use of JAD facilitation.

**Business Application:** In-depth knowledge of associated IT Business Solutions. Experience in technical, functional and migration system integration. Strong knowledge of application enabling technology (i.e. database technology, GUI, data mining/visualization, object oriented, groupware, and web technologies, data security, etc.)

**Infrastructure:** Strong knowledge of client-server technology, hardware (such as multi-processor servers), network, network management and communication technology (NOS such as SMP, SNMP, TCP/IP, IPX, network communication protocols and standards, ATM LAN switching technology, WAN, RMON, distributed network and asset management, Remote Access, telecommunication technologies such as RF and microwave, etc.)

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# Bye-bye bias?

In what was once considered a male-dominated field, women are making strides as IS strives to diversify

By Laura DiDio

Jeanette had no trouble getting a job in information systems when she graduated from the University of Minnesota last year. "I was heavily recruited by a number of firms in Minneapolis and throughout the Midwest," she says. "It was great because I was able to get an entry-level IS job [as a network administrator] that pays \$40,000 to start, plus a \$3,000 bonus to sign."

Jeanette, who requested anonymity, also leveraged the high demand for women IS professionals in order to get a few extra perks. "I wanted some flexibility in my hours so I could continue to take classes, and I

"Hone your people skills." That's the advice Terry Stahling of MIS operations for New York City's Department of Transportation offers students.



PHOTOGRAPHY BY JOHN SOARES; COLOR MANIPULATION BY ERIC YANG



also negotiated to telecom-mute one day a week," she says.

Surprised? Welcome to what just may be a reverse gender gap in the computer science field. Jobs are plentiful, and IS managers are scrambling to fill their ranks. And many are seeking out women for positions in what was once a nearly all-male field. Sometimes, as in the case of Jeanette, they're paying a premium to get them.

"The old paradigm of women competing with men has been turned around in many instances, as men are competing with women in those companies that have a mandate to diversify," says Susan Marino, director of the Program for Women at the University of Minnesota's Institute of Technology.

It's still an imperfect world, though. Bias, if not gender discrimination, still exists, particularly in traditional old-boy fields like banking. That can make moving up in the world of IS harder, and, eventually, it's likely to affect your earning power.

But listen to those in the trenches. If you're well qualified, it's a buyer's market.

#### Too many jobs

Administrators at university computer science departments in many areas of the U.S. say they have only enough graduates to fill about 70% of the available positions.

"Companies like US West, Pillsbury and others call us looking for IS professionals," Marino says. "Then the next thing they say is, 'Where are the women?' They can't hire them fast enough."

That's quite a departure from the past, in an industry that's barely 30 years old. "Ten or 12 years ago, you rarely saw a woman in IS, and women IS managers were even scarcer," says Magid Igarria, professor of information science at the Claremont Graduate School in Claremont, Calif., and author of a recent study of 300 men and women that was published in "MIS Quarterly." Now, women make up 30% of IS departments, the study says.

Laurie Sheerin, MIS manager at Nynex Corp. in Middleton, Mass., is a case in point. In 1981-82, she started out majoring in accounting at the University of Massachusetts at Amherst. In her junior year, she decided accounting wasn't for her. But it was too late to switch majors, so she opted to take electives in computer science.

Through the university placement office, she got a programming position at Pratt & Whitney, based in East Hartford, Conn. As Sheerin tells it, there was enough of a paucity of skilled professionals that her gender didn't make a bit of difference. Nowadays, Sheerin says, "the computer classes are a 50-50 split between men and women, although I still think in some fields, like electrical engineering, women are still considered an exotic rarity."

As for IS, women today are on equal footing with male graduates in most instances, including salary.

"Generally speaking, women entering

the workforce can expect to garner about the same as their male counterparts with the same age and experience," says Susan Yule, vice president of the New England division of The Eliassen Group in Wakefield, Mass., a women-owned consultancy and placement agency.

Unfortunately, that changes as you move up the ranks. The Bureau of Labor Statistics estimates that women in IS earn 83 cents for every \$1 a man makes. That's better than female attorneys, who average 60 cents for every \$1 their male counterparts earn, but it does leave room for

*Continued on page 40*

## Web sites for women

*Women may be underrepresented in the sciences, but that doesn't mean information isn't out there for you. Hey, cybergirl, fire up your modem, point that mouse and go. The World Wide Web offers resources, associations, mentoring programs and usenet groups for women in the sciences.*

#### **Women in Technology International (WITI)** **<http://www.witi.com>**

Resources, conferences, networking, advice, news, articles. WITI describes its Web site as a "virtual campus," where women from around the world gather to connect with the global network of women in technology and science. This site provides a great opportunity to network and offers loads of info.

#### **The ADA Project**

#### **<http://www.cs.yale.edu/HTML/YALE/CS/HyPlans/tap/tap.html>**

Almost every site pertaining to women and computers and the Web will bring you here. Index for news, forums, resources, career info, research programs and grants. Definitely check this out.

#### **Women Undergrads in Computer Science** **<http://www.science.unimelb.edu.au/cielle/women/wucs.html>**

This site includes sources for internships, conferences, resources, scholarships, organizations and links. Great site; be sure to stop here.

#### **Women and Minorities in Science and Engineering**

#### **[http://www.ai.mit.edu/people/ellens/Gender/wom\\_and\\_min.html](http://www.ai.mit.edu/people/ellens/Gender/wom_and_min.html)**

This site contains resources, links, history, associations, papers and profiles galore. A must see.

#### **Women and Computer Science**

#### **<http://www.ai.mit.edu/people/ellens/gender.html>**

Very comprehensive: history, links, papers, resources for women.

#### **Women: Computing and Networking**

#### **<http://tampico.cso.uiuc.edu/~gressley/women/>**

This site will direct you to articles, papers, forums and resources for women in computing.

#### **Projects and Programs Relating to Women and Computer Science**

#### **<http://www.cs.yale.edu/GIF/YALE/CS/HyPlans/tap/cs-women-projs.html>**

Listings of programs, grants and projects for women in computer science.

#### **Women In Computing Academic Resources**

#### **<http://www.cs.yale.edu/HTML/YALE/CS/HyPlans/tap/Files/WCAR.info>**

This site has a neat list of "women-friendly" academic campuses in computer science based on formal and informal programs and other factors.

#### **Organizations Encouraging Women in Science and Engineering**

#### **<http://xerxes.nas.edu:70/1/cwse>**

Maintained by the National Research Council, this site has a directory to organizations that could be useful for your academic and professional plans.

#### **Grace Hopper Celebration of Women in Computing**

#### **<http://www.research.digital.com/nsi/hopper/info.html>**

Here, you can check out papers read at this June 1994 conference by women who are leaders in their technical fields.

*For more resources for women, see "Look it up!" pages 102 - 104*



Continued from page 39

growth. Igbaria's study notes: "Women tend to be employed at lower levels of the organization, make less money and have greater intentions to leave. And women's salaries in IS currently average about

\$10,000 to \$20,000 less than their male peers."

One field known for its white male hegemony is banking. "The discrimination is subtle and constant," says Jill Baldassi, a thirtysomething IS officer at

a Northeast bank. "But it's not so blatant [that] you can do anything about it. Anyone entering banking or finance should know that, with some exceptions, you will have to work twice as hard to get promoted as your male colleagues."

Terry Stahling, assistant commissioner of MIS operations for New York City's Department of Transportation, advises

students to "hone your people skills."

"A large chunk of IS is negotiation; negotiating with higher-ups for more people, equipment and a bigger budget and dealing with your end-user community," says Stahling, who oversees a network that tracks and monitors hundreds of miles of light signals, streets and the Staten Island Ferry, among other components.

Technical skills are important, too, but in some instances they can be honed later. Stahling fell into IS in the early 1980s and took her first computer class in 1994. "That was 12 years after I started and had implemented the largest wide-area network in city government," Stahling says.

"Technology will keep booming," says the University of Minnesota's Marino, "and so will the demand for IS professionals. This is great for women, since companies can't afford to erect barriers based on gender." ☼

*DiDio is a Computerworld senior editor, local-area networks.*

Laurie Sheerin majored in accounting in the early '80s, but pursued a career path in MIS after graduation.



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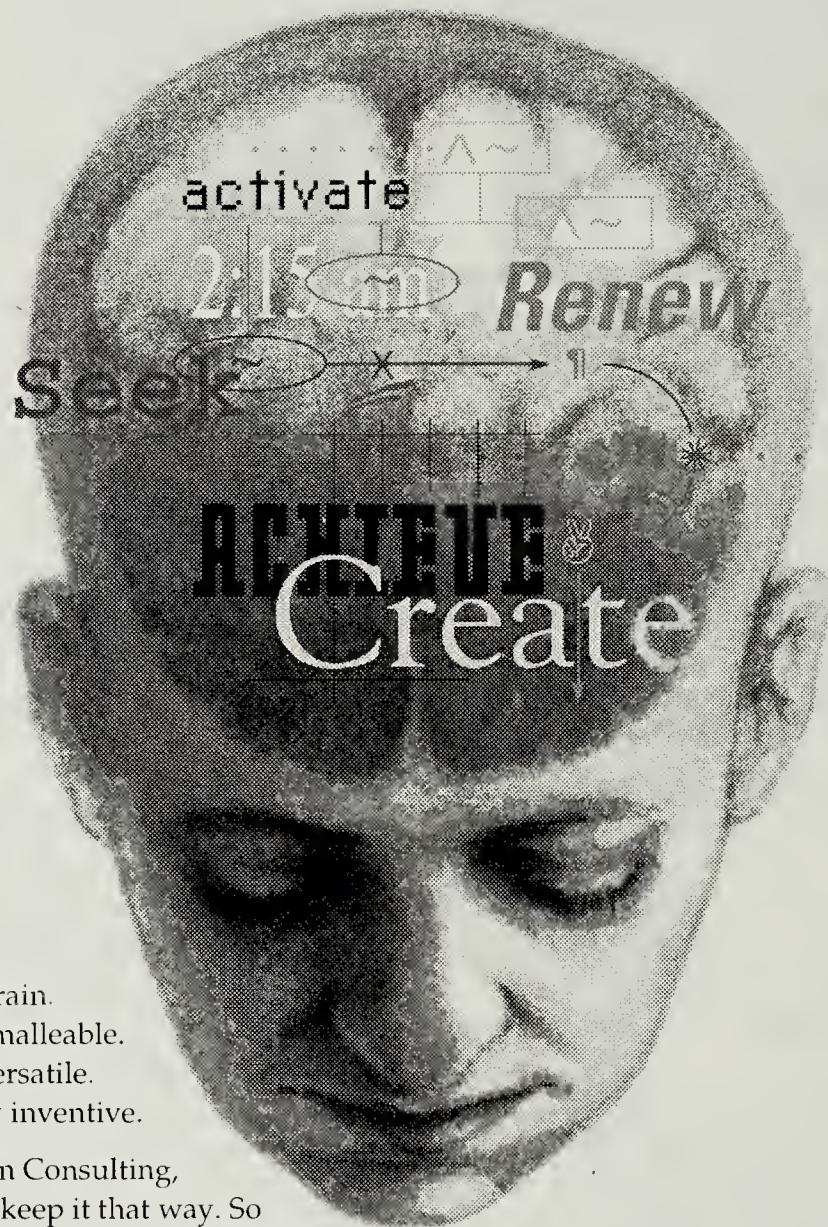
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## Apple Computer, Inc.

### Software quality engineer

**Guadalupe Silva**



**Cupertino, Calif.**

**Age: 26**

**B.S. Computer science, Santa Clara University**

When Guadalupe Silva was a teenager, she worked in California's fields and orchards picking fruits and vegetables. Now, she

works at Apple Computer writing test plans and programming test tools in the systems software group (see "Experience preferred," page 31).

At Apple, Silva works with a team that combs through Apple's 32 foreign-language and international versions of software

and operating systems for date, time and number formatting. Each version may have a different way of expressing the date and time, so individual lines of code sometimes have to be examined.

Silva, who is bilingual, programs test plans and design documents and reads documentation to learn how these functions are expressed in different languages. She then works out ways to format each of these for the foreign language versions.

Though she declined to say what her salary is, Silva says it's competitive with those at similar Silicon Valley companies.

The daughter of Mexican immigrants, Silva was the first person in her family to attend college. She combined grants, scholarships, government aid and work-study programs to attend Santa Clara University. During her freshman year, she applied for an Inroads internship, an award that places talented minority students with businesses throughout the U.S., and was accepted to intern with Apple. She worked there three summers.

"I can't stress enough what a great opportunity summer internships are," Silva says. "Interns have so many privileges and get to see so much."

What's the best part of Silva's job? "The challenge of finding ways to solve intricate problems; every day you face something new. It's never boring."

— Stewart Deck

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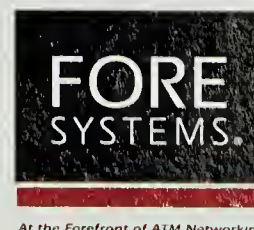


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## She's her own hero

By Candee Wilde

Kim Polese, founder and CEO of software development company Marimba, Inc., realized she had a passion for computers that she wanted to share soon after completing her first programming class in undergraduate school in the early 1980s. So the 18-year-old college student, whose efforts would later shape Java into one of the hottest programming languages ever, began teaching a night-school programming class for children and adults.

*Continued on page 46*



Continued from page 45

Twelve years after graduating from college, Polese, 34 and CEO of her own software development company, says she still loves to communicate her "passion for technology" to others. Polese recently took time out from her hectic schedule at her Palo Alto, Calif.-based company, Marimba, Inc., to talk with freelance writer Candee Wilde about her career path and other issues.

**Q: When did you realize you had an interest or aptitude in computers?**

**A:** It was in college. I was majoring in biophysics — I'd always had a strong interest in the sciences but I wasn't sure where I wanted to focus. I signed up for an introductory computer science class and fell in love with programming. What I liked was the combination of science and creativity.

One aspect of  
my personality  
that's helped  
is my desire  
to live a bit  
on the edge.

**Q: What is your educational background?**

**A:** I graduated from the University of California at Berkeley in 1984 with a degree in biophysics and a computer science emphasis. I subsequently took a year of pregraduate study in computer science at the University of Washington in Seattle.

**Q: Were the classes that specialized in computers about evenly split between men and women most of the time?**

**A:** No. They were largely men.

**Q: How and why did you start working in**

**the IS field?**

**A:** I began teaching computer programming at a local, public science museum, called the Lawrence Hall of Science, in Berkeley, shortly after I completed my first programming class as an undergraduate. I taught Pascal programming to kids

and adults at night. In addition, I started a volunteer program for computer tutoring in the Berkeley public schools for kids in elementary and junior high school. I loved being able to communicate my passion for technology and computers to other people, which is something I do on a regular basis in my current profession.

**Q: Other than formal education, what prepared you for the working world of IS?**

**A:** I began working in the software industry at a company called IntelliCorp in 1986 as a systems engineer. In that first

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job, I began working with customers like Ford, AT&T, McDonnell Douglas, NASA and others, on helping them develop expert systems that could reason like human beings. I became familiar with the IS industry through working directly with large Fortune 500

customers on solving problems that were key to their businesses, such as factory automation, computer-aided design and automated customer support services.

**Q: What are your skills and aptitudes?**

**A:** I love communicating my passion for great technology to other people. I'm also a very curious person; I'm a great sponge for information and I love to create solutions by pulling together bits of disparate data points. I think one aspect of my personality that has definitely helped me is my desire to live a bit on the edge — always just on the

edge of my comfort zone.

**Q: Did you have a mentor or mentors? If so, were they important to your success?**

**A:** I didn't, and don't, have one mentor. But I do tend to pull from character traits of people who I admire, and I shape in my mind the kind of person I'd like to be. In other words, when I come across someone who I particularly admire for one reason or another, I tend to study that trait, and then commit it to memory and endeavor to incorporate it into myself. I guess I'm creating my own mentor in myself.

Don't be  
intimidated by  
what you  
don't know -  
go out and  
learn it.

**Q: Do you have a hero? If so, who? And why do you admire that person?**

**A:** There is no one hero, but there are personality traits that I admire and strive to incorporate in my daily life. Traits like integrity, honesty, respect for others and an open mind. Also, I focus on having fun, learning and hav-

ing an adventure. That usually keeps things in perspective.

**Q: Did you ever feel that being a woman was a burden in this industry? Did you ever feel discriminated against?**

**A:** There are subtle ways in which women are discriminated against and there are un-subtle ways. I have experienced both. Although I am aware that the situation exists, I don't let it defocus me from the task at hand. I expect the best from people, and I find that works very well in combating

*Continued on page 48*



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*Continued from page 47*

tendencies toward prejudice or discrimination. Today, I rarely do [feel discriminated against]; I'm totally focused on building a successful company together with my co-workers, and being a woman is completely secondary to this goal.

**Q: What do you think the current situation is for women entering the computer field? Have things changed in the years you have been working?**

**A:** Things have changed somewhat in the 10 years I've been in this industry, but not much. Women are starting to become more prominent, but the change seems pretty imperceptible to me. I think women still face challenges in penetrating a male-dominated industry, but I also feel as if the breakthroughs will happen faster now that the high-tech world is becoming more mainstream in our culture.

**Q: How did you end up working on the Java**

**development team? What was it like?**

**A:** I was the product manager for C++ at Sun Microsystems. Being a product manager is like running your own company — you have total responsibility for every aspect of the product, from branding, positioning and promotions to business strategy to deeply technical aspects of the product.

**Q: Tell us a bit about Marimba.**

**A:** Marimba is building advanced technology for the deployment of network-aware Java applications.

**Q: Was it a difficult decision to strike out on your own?**

**A:** This was a relatively easy decision for me to make, because I'd always wanted to start my own company. I'd accomplished what I'd set out to with Java at Sun, and this was the perfect time in the market to form a company to build products on top of the platform that I'd helped create.

**Q: What positions are you hiring for?**

**A:** We're hiring engineers, business development people, marketing product managers, technical writers, a webmaster and graphic designer, and various executive positions.

**Q: What kind of characteristics do you look for in an employee?**

**A:** The kind of people we're looking for are bright, self-motivating, with a sense of fun and adventure, energetic, and both deeply knowledgeable about their own areas of expertise as well as "big picture" thinkers.

**Q: What advice do you have for women entering this field? For men? For both?**

**A:** Don't be intimidated by what you don't know — go out and learn it. Technology changes so fast, everyone is always learning. Be curious and energetic and committed to excellence, and you will be successful ☼

*Wilde is a freelance writer in Easton, Conn.*

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# IS adrift

Lack of direction and inspiration from senior managers leaves information systems professionals lost at sea

By Rochelle Garner

Imagine sitting in a class where the professor gives a canned lecture that hasn't been updated in 10 years. He can't make the material relevant, no matter what. He discourages questions, is even hostile to them. He frowns on initiative.

Now imagine spending your working life in that situation.

That's the predicament of "Mr. X," a midlevel information systems manager at a Western oil and gas company. He and his IS colleagues must contend with corporate admirals who view information technology as an enemy to be sub-

dued. "They don't have any real comprehension of how to manage IS, how to fix problems or how to get the greatest value out of it," Mr. X says about the people who run his



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firm. "They don't trust anyone who does, really."

Small wonder he doesn't want his name or company listed for the world to see.

Don't despair — Mr. X's situation is not the norm. But it does seem to be an extreme manifestation of the frustrations revealed by IS professionals in *Computerworld's* annual Job Satisfaction Survey. The

survey results are based on responses from 553 IS managers and professionals. Most respondents say they enjoy working with IT, but their satisfaction levels are declining.

Some reasons cited for that decline: little access to new technologies, challenging projects or strategic efforts; senior management incapable of creating a strategic direction and sticking with it; and a lack of understanding of the role IS plays in increasing shareholder value.

#### A rallying cry

Janice Knight has seen firsthand how important strategic direction can be to job satisfaction. As an information resource coordinator for Orange County, Fla., Knight must translate the county's over-

arching strategic direction into a five-year tactical plan. Two years ago, when Knight joined the county government as chief information officer, there was no strategic direction. The IS organization felt aimless. But last year, the chairman of Orange County de-

vised a strategy dubbed Citizens First.

"Those two simple words, 'Citizens First,' boom, hit everyone," Knight says. "With it, people instinctively could look out across their desks and know why they were there. I thought it was brilliant."

Equally important, analysts say, is maintaining a consistent strategic direction. Lack of consistency troubles many *Computerworld* Job Satisfaction Survey respondents. Even those who describe themselves as "very satisfied" to "somewhat sat-

## Mo money, honey

What would make you more satisfied with your job?

- 1 Salary increase
- 2 Performance bonuses
- 3 Opportunity for advancement
- 4 Use of new technologies
- 5 Availability of IS training

Source: CW's 1996 survey of 553 IS professionals

## I feel so uninspired

Are you working to your full potential?

	YES	NO
Senior IS executive	48%	52%
IS middle manager	35%	65%
IS staff	34%	66%

Source: CW's 1996 survey of 553 IS professionals



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isfied" revealed a yearning for consistent sailing orders.

### Pressure cooker

The growing importance of technology is also putting more stress on IS professionals. Senior management may pick the technology, but IS has the high-pressure task of trying to make it work.

One IS professional, who feels highly stressed and prefers to remain anonymous, describes 80-hour workweeks and teeth-grinding responsibilities. "There's a lot happening in this industry, and information technology is a major part of competing in this business," he says. "The pressure is always there. We are always on the critical path for the next stage of development. People are always depending on me."

It's a recipe for a sense of powerlessness that comes from too many fires and too little direction. And as companies continue to contract with outsiders to handle certain aspects of the IS function, such as



operations or development, that feeling of helplessness is likely to increase. It hardly seems fair, especially considering that the top source of gratification for all IS profes-

sionals is working on advanced technologies.

"Probably 20% to 25% of an IT organization gets exposed to those new technologies, and the remaining 75% have to maintain the in-place legacy systems to run the business," says Gene Raphaelian, vice president of management strategies and directions at Gartner Group, Inc.'s Bay Area Research Center in Santa Clara, Calif.

But Jim Bair, the Gartner research director, sees new opportunities. "That's particularly true with the Web — a phenomenon that's happening too fast to set up a contract with a systems integrator or any kind of consultant," Bair says. "These are opportunities for new and exciting things for IT professionals to do. And the Web is happening so fast that you can almost view consultants as having lost their edge." ❄

*Garner is a freelance writer in San Carlos, Calif.*

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# STRESSED

## ...in IS

By Tim Ouellette

You thought  
final exams  
were stressful?  
Welcome to the  
IS workforce,  
where life isn't  
always a party.

**A**sk Ron Berry about stress. Berry, a senior risk analyst at Barnett Bank in Jacksonville, Fla., has gone through everything from operations to support services in his 18 years in IS. He's now managing the security risks of adding new technology to a financial network.

A typical day? Give a technical briefing for corporate managers. Chase down a problem with a financial transaction application affecting millions of dollars. Or maybe hit the road to join an FBI bank fraud case somewhere in the Southeast.

Berry finds this frenetic pace stimulating. But when it gets to be too much, he knows to take a load off. His method of relaxation: donning a wet suit and surfing the waters off the Atlantic coast of Florida, no matter what the weather. "There's nothing like it," Berry says.

Whether you're a programmer or a help desk operator, stress is part of life in the IS field. There are harried users to deal with. Deadlines that can be expensive to miss. Resources that are lean — meaning you might be called on to do the job of more than one person, or achieve results with fewer ma-

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terials than you'd like. There's the fast pace of changing technologies, too — more to learn, more to implement, more to be held accountable for as business looks to IS to improve the bottom line. (See "Job Satisfaction Survey," page 49.)

"Companies want people who can deal with stress," says Magid Igbaria, professor of information science at the Claremont Graduate School in Claremont, Calif. The type of stress to be dealt with varies, depending on the IS job.

"Network support services is a lot more stress and a lot more fire fighting [than development]," says Sean Tygrett, a project development analyst for his alma mater, Babson College in Wellesley, Mass., where he spent his first year after graduation in a systems support role. "But at the same time, it is also really exciting and helped me make quick decisions on my feet."

Exhilarating and exhausting, stress is something you can enter the workforce prepared to handle. How? Your soon-to-be col-

leagues urge you to get experience and training as soon as possible, learn how to put work aside when you need to, stay dedicated to hobbies outside of work and go into a job knowing what the pressure will be like.

#### First job, first stress

Mitch Cousineau, a 1996 graduate of Northeastern University in Boston, is a project coordinator at Lotus Development Corp. Cousineau helps write applications for the Cambridge, Mass., company's academic marketing division. His observations on life at a major software firm: "You have to have the ability to juggle all different schedules and be interrupted. It is a lot of hours, and you are perpetually behind. The demands on us are so severe that it is easy to get sucked into working too much."

"You can't get away with living off Mountain Dew and pizza for a few days," says Eric Oehler, a Web page programmer at Promega Corp. in Madison, Wis.

But having an inkling of what you're getting into helps. Internships and work expe-

## Chill Pill



rience, besides making you marketable in your job search, can give you an advantage in adjusting to the real world.

"It was very easy getting used to work. I knew it would be," says Sandhya Gabbur, a New York University business school graduate who started working in the IS field as part of a college course. Gabbur is now an

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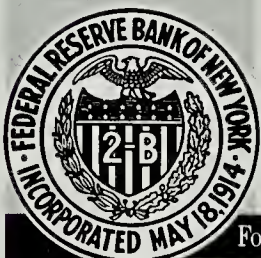
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Don't stress out before you have to. Here are some ways to prevent or prepare for work-related stress:

- ▶ Do an internship to experience life in the trenches.
- ▶ Find companies that promote your style — casual or button-down, whatever makes you comfortable.
- ▶ Talk to IS people at companies you're interested in about how stressful their jobs are.
- ▶ Start the job with realistic expectations of what the pressures will be.
- ▶ Keep up with hobbies and friends; balance is the key.

— Tim Ouellette

assistant Java programmer at ILX Systems, Inc. in New York, the financial services firm where she worked during college. She develops Java-based charting applets for calculating market data.

Lotus' Cousineau was an intern at his place of employ, too, working on various application development projects for the same

group he works with now. The real-world project management skills were most valuable, he says.

Arthur Goldberg, a professor at NYU's Stern School of Business, agrees. "My experience has been that workers in corporations work mostly on projects with teams under certain deadlines, and students needed to

get those experiences in school" to limit stress once in the workforce, he says.

#### No more happy hours

Beyond the intensity of workday challenges comes another frustration for new IS workers: long hours that stymie social life. Seven-

*Continued on page 57*

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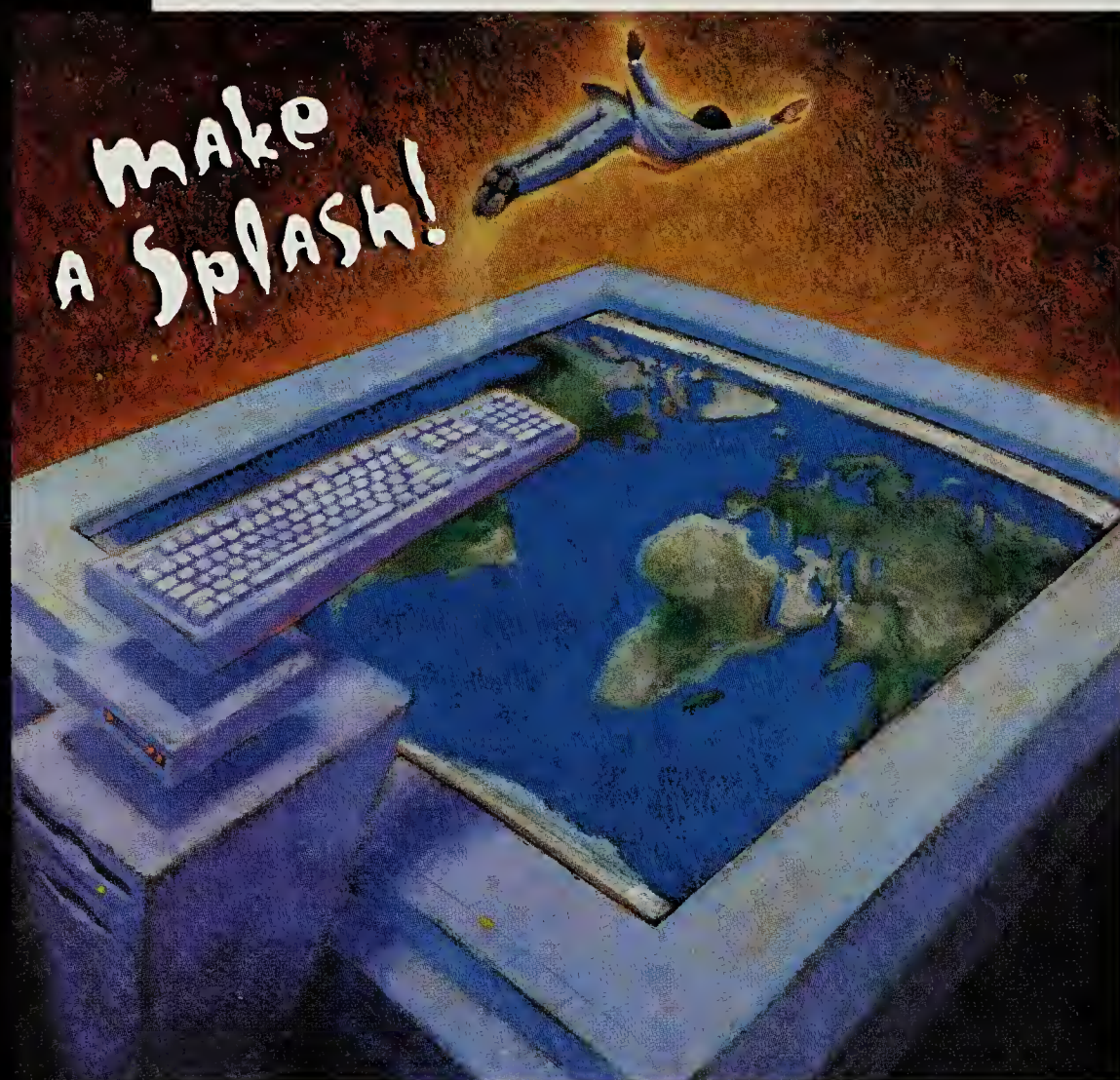
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*Continued from page 55*

ty-hour weeks are the norm at some companies, though time commitments can vary by job title. While the ante rises in support jobs after a rollout, the late nights increase in development jobs when a deadline nears.

"Once out of the academic environment, social life quickly evolves around the work environment," Babson's Tygrett says with a sigh. But blowing off steam with co-workers is not the same as enjoying free time with friends, he says.

Indeed, long hours can put a strain on friendships and family ties. But not all companies expect you to pledge your firstborn child to the C++ gods. Sprint Corp., for example, has sound scheduling and offers training to keep employees' workloads manageable, says Elizabeth Schick, a software engineer at the company in Reston, Va.

"I am the only person I know among my

friends in computers who puts in regular work hours," says the 1996 University of Virginia grad. Sprint "has it down to a science in terms of limiting the extra hours IS has to work," even when they're supporting a huge data products billing system, she says.



#### Forewarned is forearmed

But not all companies have that down to a science. So for the rest of us, the best stress-management strategy may be that of managing our expectations. (See "Chill Pill" box, page 55.)

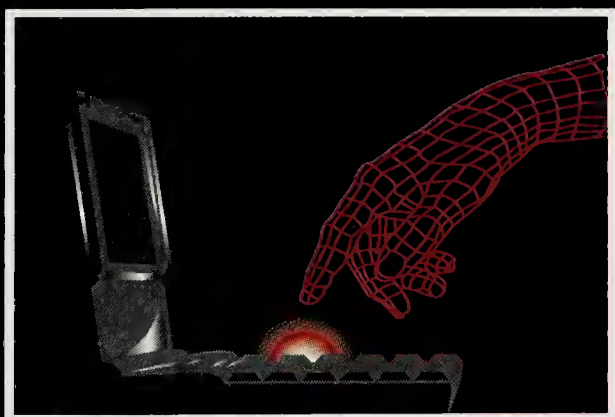
If your company offers a standard training program for new workers, especially in certain development languages and company systems, take it. They'll establish what the firm expects from you, technically and otherwise, which can set your mind at ease.

"There is some concern among students that employers will expect them to be the expert," says Ryan Nelson, director at the Center for the Management of Information Technology at the University of Virginia in Charlottesville. "But most larger companies do not do that and have their own training program in place."

Finding a job in which you're physically comfortable can minimize stress, too. Even in corporate America, employees are being given freer rein in terms of dress and even atmosphere. A company that fits your personal style is a better fit overall.

Still, if your company is one where you burn the midnight oil, some conventional stress-management tips apply. Eat right, get up from your desk periodically to rest your eyes and stretch your legs and keep outside hobbies going, even when time is precious. And from the start, be realistic about how much pressure you can — and want — to handle. Not all jobs are the same. ☼

*Ouellette is a Computerworld senior writer.*



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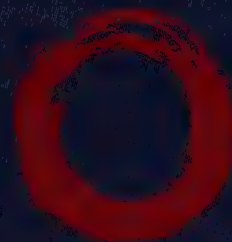
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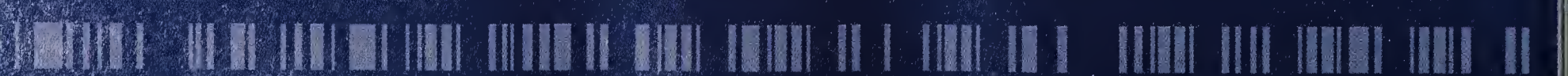
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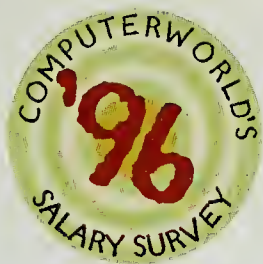
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# The Comp Factor

*High salaries sound nice, but what really counts is the total compensation package*

By Alan Earls and Anne McCrory

**S**o you're about to enter the workforce, and you're thinking bucks. What's the final offer going to be? Will it be competitive?

A word of advice: Don't think just salary and benefits. Think total comp, to use an HR term. (It's short for total compensation.) Total comp includes

bonuses, which are increasingly becoming part of compensation

packages. On the sur-

face, that sounds sweet. (Salary *plus*

bonuses? That's more than you'd

dreamed for.) In reality, it can mean

the cash in your

pocket is more directly tied to how strong your performance is or how much your work contributes to the company's bottom line. Read: Your salary and/or raises might be lower, but potentially, you could make significantly more money.

This "pay-for-performance" trend started in the upper ranks — it's fueled many a

CEO for years — but it's

increasingly making

its way down the

ladder at many com-

panies. Computer-

world's annual salary

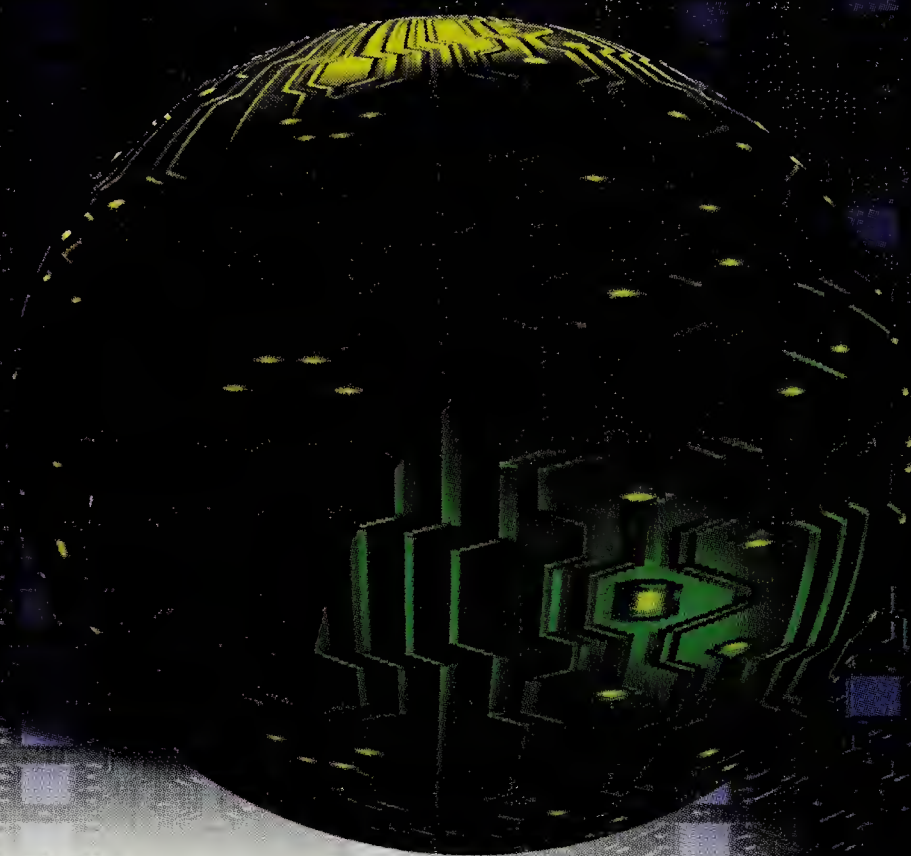
survey first showed

*Continued on page 61*





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Continued from page 59

this trend last year, and the movement gained momentum this year. Up to the level of network administrator, bonuses make up 3% to 7% of total comp, this year's survey says. So, if you're looking to be a network administrator, expect to make an average \$42,858 in salary — and an average \$1,768 in bonus. As a lead computer operator, your average compensation would be \$31,058 — and \$983 of that is in bonus dollars.

Our survey, with 1,186 responses, covered more than 20 industries, with company size spanning a wide spectrum. This year, the highest salary increases went to computer companies (10.65%), banking (6.31%) and transportation (6.23%), though the lion's share of salary increases went to the top positions in IS. And there can be wide disparities among industries: For example, Frank DeBuck, branch chief at the Securities and Exchange Commission in Alexandria, Va.,

Continued on page 63

Networks				Systems development and integration	
Manager of voice/data communications	Communications specialist	Network administrator	LAN manager	Client/server project manager, systems and programming	Mainframe project manager, systems and programming
Average: \$55,227	Average: \$45,117	Average: \$42,858	Average: \$44,976	Average: \$57,012	Average: \$56,336
Bonus: \$2,734	Bonus: \$1,690	Bonus: \$1,768	Bonus: \$1,895	Bonus: \$4,042	Bonus: \$2,639
Total: \$57,961	Total: \$46,807	Total: \$44,626	Total: \$46,871	Total: \$61,054	Total: \$58,975
Salaries based on company size (by revenue)					
Under \$100M: \$49,306	Under \$100M: \$43,978	Under \$100M: \$41,982	Under \$100M: \$42,277	Under \$100M: \$51,731	Under \$100M: \$54,018
\$100M-\$499M: \$56,969	\$100M-\$499M: \$43,236	\$100M-\$499M: \$45,536	\$100M-\$499M: \$47,497	\$100M-\$499M: \$58,570	\$100M-\$499M: \$56,105
\$500M or more: \$69,167	\$500M or more: \$53,169	\$500M or more: \$48,359	\$500M or more: \$53,843	\$500M or more: \$70,257	\$500M or more: \$65,843

Source: Computerworld's 1996 salary survey

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**Frisbee for daily Ultimate Frisbee match at lunch.**

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Continued from page 61

complains, "We are 23% behind the private sector."

As the trend toward pay-for-performance continues, IS rank and file must contend with the likelihood that even more will be required of them before they secure significant pay increases.

At a North Carolina agricultural products firm, a CIO says he'd love to offer performance-based bonuses to bring IS staffers' pay up to industry norms — and to serve as an incentive. "I know my network specialists are undercompensated," he says. "I really think pay-for-performance is the way to go." But management hasn't answered his cry.

What your prospective employers offer is likely to vary. But the data on these pages can get you started. ☼

More survey charts on pages 65 and 67

Earls is a freelance writer in Franklin Mass. McCrory is a managing editor in Computerworld's Magazines Group.

## Systems development and integration

Senior systems analyst	Systems analyst	Senior systems programmer	Systems programmer	Senior programmer/analyst	Programmer/analyst
Average: \$51,136	Average: \$43,062	Average: \$50,089	Average: \$42,553	Average: \$46,139	Average: \$37,499
Bonus: \$2,638	Bonus: \$1,686	Bonus: \$1,639	Bonus: \$1,300	Bonus: \$1,774	Bonus: \$1,264
Total: \$53,774	Total: \$44,748	Total: \$51,728	Total: \$43,853	Total: \$47,913	Total: \$38,763
Salaries based on company size (by revenue)					
Under \$100M: \$51,264	Under \$100M: \$41,383	Under \$100M: \$47,952	Under \$100M: \$39,471	Under \$100M: \$44,681	Under \$100M: \$35,687
\$100M-\$499M: \$52,154	\$100M-\$499M: \$44,401	\$100M-\$499M: \$51,816	\$100M-\$499M: \$44,323	\$100M-\$499M: \$47,531	\$100M-\$499M: \$39,154
\$500M or more: \$58,615	\$500M or more: \$49,355	\$500M or more: \$56,536	\$500M or more: \$48,397	\$500M or more: \$53,155	\$500M or more: \$43,361

Source: Computerworld's 1996 salary survey

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Systems development and integration		Technical services and operations					PC end-user support	
Database manager	Database analyst	Computer operations manager	Computer operations supervisor	Lead computer operator	Computer operator	Technical specialist	Micros manager, End-user computing manager	Technical support manager/Help desk manager
Average: \$55,521	Average: \$49,240	Average: \$48,360	Average: \$38,050	Average: \$30,075	Average: \$24,710	Average: \$34,739	Average: \$46,890	Average: \$42,092
Bonus: \$2,426	Bonus: \$1,597	Bonus: \$2,234	Bonus: \$1,212	Bonus: \$983	Bonus: \$836	Bonus: \$978	Bonus: \$2,349	Bonus: \$1,557
Total: \$57,947	Total: \$50,837	Total: \$50,594	Total: \$39,262	Total: \$31,058	Total: \$25,546	Total: \$35,717	Total: \$49,239	Total: \$43,649
Salaries based on company size (by revenue)								
Under \$100M: \$51,085	Under \$100M: \$47,649	Under \$100M: \$44,509	Under \$100M: \$36,093	Under \$100M: \$28,592	Under \$100M: \$24,503	Under \$100M: \$31,520	Under \$100M: \$42,393	Under \$100M: \$38,237
\$100M-\$499M: \$57,357	\$100M-\$499M: \$47,646	\$100M-\$499M: \$50,728	\$100M-\$499M: \$36,492	\$100M-\$499M: \$30,821	\$100M-\$499M: \$25,094	\$100M-\$499M: \$36,255	\$100M-\$499M: \$48,176	\$100M-\$499M: \$41,737
\$500M or more: \$65,172	\$500M or more: \$55,256	\$500M or more: \$59,315	\$500M or more: \$46,258	\$500M or more: \$34,548	\$500M or more: \$28,759	\$500M or more: \$41,304	\$500M or more: \$58,515	\$500M or more: \$53,831

Source: Computerworld's 1996 salary survey

# Gaining Strength.

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## PC End-user support

Help desk operator	PC technical support specialist
Average: <b>\$29,979</b>	Average: <b>\$32,849</b>
Bonus: <b>\$957</b>	Bonus: <b>\$1,355</b>
Total: <b>\$30,936</b>	Total: <b>\$34,204</b>

## Company size by revenue

Under \$100M: <b>\$29,042</b>	Under \$100M: <b>\$32,007</b>
\$100M-\$499M: <b>\$30,083</b>	\$100M-\$499M: <b>\$33,700</b>
\$500M or more: <b>\$33,659</b>	\$500M or more: <b>\$33,306</b>

Source: Computerworld's 1996 salary survey

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Job area	Highest paying	Lowest paying
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Networks	Insurance	Nonprofit
Systems development and integration	Business services, IS	Nonprofit
Technical services and operations	Computer hardware and software	Distribution
PC end-user support	Aerospace/Automotive	Industrial equipment

## Methodology

Computerworld conducted a nationwide survey of information systems managers to determine the annual salaries, salary increases, additional compensations and turnover for IS personnel. The mail survey was conducted in May and June 1996; 1,186 responses were received.

### Average number of IS employees

Manufacturing -----	<b>96</b>
Nonmanufacturing -----	<b>167</b>

### Estimated average revenue or assets (in millions)

Manufacturing -----	<b>\$802</b>
Nonmanufacturing -----	<b>\$784</b>

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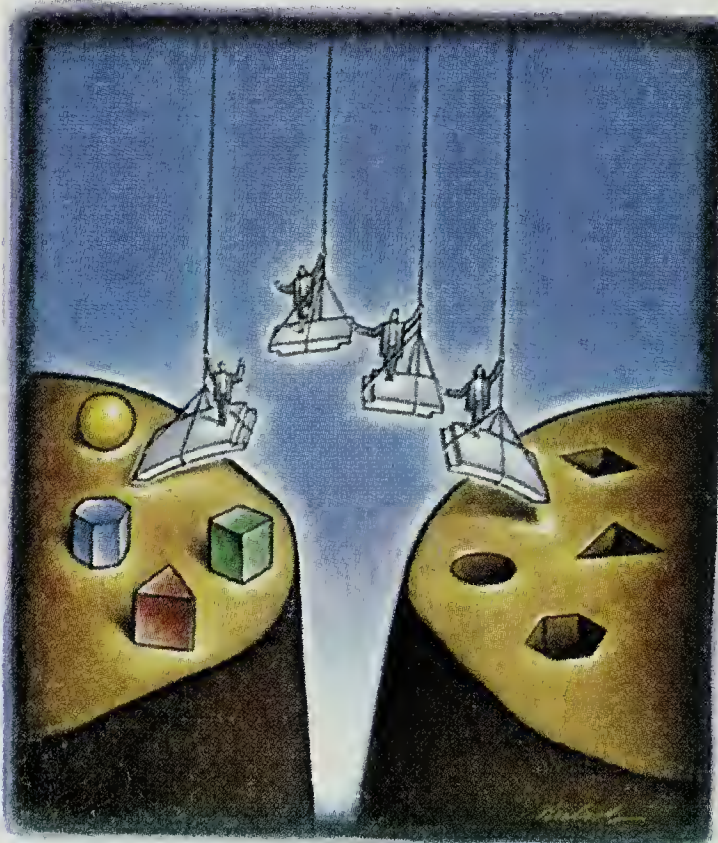
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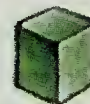
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IS departments are facing serious shortages in several hot specialty areas and paying salary premiums of up to 35% to help alleviate them

# Sizzling skill sets

By Brian McWilliams

With an information systems staff of 800, Baxter International, Inc. seems like it wouldn't be shorthanded. But Kathy Brittain White, chief information officer of the \$9.3 billion Deerfield, Ill.-based hospital supply company, relies heavily on consultants to staff Baxter's SAP R/3 project.

"We'd like to keep this work inside," she says, "but there's a huge void of people skilled in that area."

Demand for skills is running well ahead of supply in a number of new technologies, according to *Computerworld's* 1995 IS Skills Survey. (The 1996 survey results will be published in November.) SAP, object-oriented programming, relational databases and client/server

*Continued on page 71*





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# The Top 10 hottest skills

How much more money these skills can earn you

Skill	Premium companies will pay	Mainstream or niche skill
1. SAP	17.1%	Niche
2. NextStep	9.5%	Niche
3. Smalltalk	9.3%	Niche
4. Dynasty	8.8%	Niche
5. Objective-C	8.8%	Niche
6. Gupta SQLBase	8.7%	Niche
7. Oracle (applications)	8.5%	Mainstream
8. Sybase (RDBMS)	8.5%	Mainstream
9. Oracle (RDBMS)	8.3%	Mainstream
10. PeopleSoft	8.3%	Niche

Note: Mainstream skills are skills that 10% or more respondents mentioned as being necessary. Niche skills were mentioned by less than 10% of respondents.  
Source: Exclusive 1995 Computerworld Skills Survey of 1,200 IS managers.

Continued from page 69

application development — programmers proficient in these areas are highly sought after in every industry and region of the country.

One industry that's really feeling the crunch is pharmaceuticals. IT organizations in that field are under pressure to knit together global networks and build systems required by market changes such as managed care, according to Polly Moore, vice president of information resources at Genentech, Inc. in South San Francisco, Calif. "Our projects today are massive compared to five or ten years ago," she says, "so we are extremely dependent on good people."

Moore says her UNIX systems programmers are especially critical. "These are extremely talented people who could go anywhere they wanted. I'd hate to try to replace them in this market. It would probably take us six months."

Stoked by a strong economy and the mass movement to client/server, today's

Continued on page 72



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ANDY FREEBERG

"Our projects today are massive compared to five or 10 years ago, so we are extremely dependent on good people."

— Polly Moore, vice president, information resources, Genentech

Continued from page 71

white-hot market is driving up salaries for programmers with client/server skills. Many of the nearly 1,200 IS managers *Computerworld* surveyed last year report paying sizable salary premiums — in some

cases, more than 35% — to attract and retain talent.

Topping the pay scale are SAP programmers. According to the survey, they command salaries that average 17% more

than other IS staff in the same organization. And that figure, while nearly double the average premium paid for other hot skills like NextStep (9.47%), SmallTalk (9.34%) and Dynasty (8.78%), may actually be low, according to some executives.

"Seventeen percent is bunk," says Mike Johnson, president of Texas Triple-I, Inc., a Houston-based SAP consulting firm. He reports that Triple-I pays salaries of \$150,000 and up for programmers experienced in R/3. Triple-I's employees, many of them recent recruits from the Pacific Rim and Europe, get calls every day from headhunters, Johnson says. "These guys know what they are worth. It's a simple issue of supply and demand," he says.

#### What's at stake

While the skills shortage has been good for the wallets of some developers, technology executives say the shortage may threaten the overall health of their organizations. Even at many of the best IS shops,

Continued on page 74

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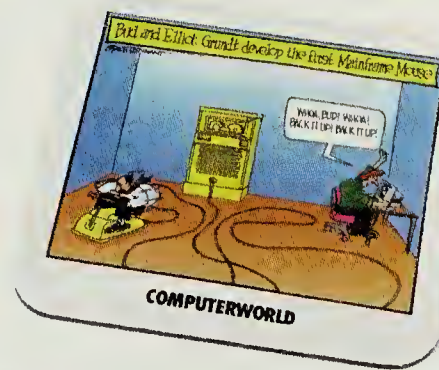


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Continued from page 72

turnover rates are rising — a fact some managers attribute to an increasingly mercenary streak in talented programmers.

"We've lost some very good people in the last couple of months," reports Jim Kinney, CIO of Kraft General Foods, a division of Philip Morris Companies, Inc. in Northfield, Ill. "You try to build a culture that people want to be part of, but it's hard when someone else is offering them a 30% jump in salary."

#### Free agents

Many IS managers accept such free agency as part of the new social contract between programmers and their employers, says Steve McMahan, managing director at the Boston office of Source EDP, an IS placement and consulting firm. But problems arise when the talent shortage reverberates outside the IS group.

"In the past month alone," McMahan reports, "two large companies have told me they have multimillion-dollar client/server projects held up at the dock because

of staffing problems."

Such situations mean its boom time for the recruiting business. Recruiters such as Mike Varrichio, branch manager of Source

**"You try to  
build a culture  
that people  
want to be part  
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EDP in Dallas, have seen the hiring situation in Texas go from dire in the late 1980s to delirious today, partly because of an influx of telecommunications and transportation firms into the Texas economy. The state is one of the hottest IS job markets in the country, according to *Computerworld's* survey. IS managers in Dallas, for example, report paying double-digit salary premiums for two dozen skills, and premiums in excess of 30% for Gupta/SQLBase, CA/Ingres, Progress and SAP.

But some IS managers say salaries will come back to earth soon.

Rick Leif, vice president of information services at Allmerica Property and Casualty Companies, Inc. in Worcester, Mass., says his goal is just to ride out the current hiring storm with his staff more or less intact. His thinking: Technologies come and go, so it's better to build skills internally than chase outside talent.

"In the long term, having a staff of Cobol programmers is not good for a company or its employees," Leif says. To

**"Periods of talent scarcity can quickly be followed by gluts. So don't fall in love with your resume."**

— Steve McMahan,  
managing director,  
Source EDP, Boston

satisfy individuals' desire to remain professionally viable while keeping the department as a whole productive, Leif has opted to outsource grunt-level Cobol coding and save the C and C++ application design for retrained employees.

#### Retrained but not retained

Of course, retrained employees are immediately worth more on the open market. Kraft is now working on an agreement that would

require IS employees to remain with the company for six months after training in SAP or other highly marketable skills. Earlier departures would require the employee to reimburse the company for the training. For employees that stick with the company beyond six months, Kraft will pay a bonus, Kinney says.

With companies going to new lengths to retain top IS pros, it's tempting for programmers to get sanguine. But, as every student of job-market dynamics knows, "Periods of talent scarcity can quickly be followed by gluts. So don't fall in love with your resume," counsels Source EDP's McMahan.

Still, it's hard to deny that these are great times to be a software pro. How good are they? Programming guru Ed Yourdon, author of the 1991 book *Decline and Fall of the American Programmer*, has published a sequel. And the title says it all: *Rise and Resurrection of the American Programmer*. ☼

McWilliams is a freelance writer in Durham, N.H.

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## Netscape Communications Corp.

### Product developer

**Juan Jose Mata**



**Mountain View, Calif.**  
**Age: 23**  
**B.S. Electrical computer engineering/computer science**  
**M.A. Computer engineering, Carnegie Mellon University**

Pundits call Netscape a phenomenon. Juan Jose Mata calls it a collegial, twentysomething place to work. "It feels like being a graduate student, except the deadlines are a lot stricter," he says.

The pace is hectic at the Web browser maker, which went public last year, and Mata, who works on a 12-person team in

commercial applications, says 10- and 11-hour days are not uncommon. But the work atmosphere is relaxed and casual, with jeans the uniform. "The time goes by quickly when you enjoy what you're doing," he says.

Time also goes by quickly when a game of Ping-Pong, foosball or table hockey breaks out near his cubicle. Do the managers mind? "No," he says with a laugh. "Sometimes they're the ones that come get you to join the game."

Mata, who joined Netscape in July, works with a team developing products for online commercial publishing systems, porting code from one platform to another. He tests code, fixes linking and compiler errors, checks for solid builds and compares notes with others to learn their approaches to problem solving.

As an undergraduate at Carnegie Mellon University, Mata knew he wanted to work in Silicon Valley eventually. He says he was drawn to Netscape's "underdog cachet," its reputation for innovative work and a determined companywide spirit in taking on the industry giants. His annual salary is in the \$50,000 to \$55,000 per year range.

When a finished product comes out, "you have a satisfied sense of ownership of it," Mata says. "You might see a great product review and say, 'Cool, I had something to do with that.'"

— Stewart Deck

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# o MBA's

*Are they your ticket to success?*

By Joseph Maglitta

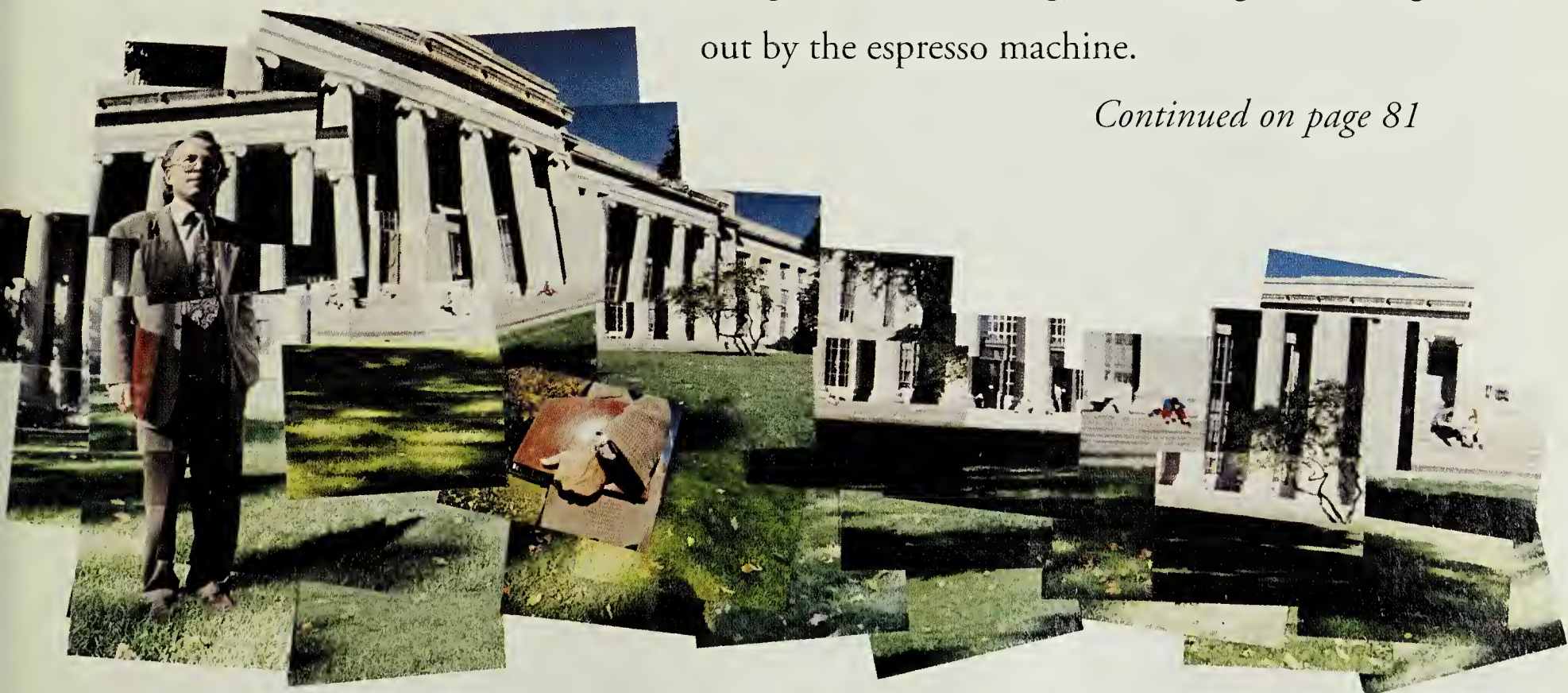
All right, let's see if we can sort out this grad education thing as painlessly as possible, OK? We're going to get into a couple of groups and see if a Techno MBA makes sense for you to pursue.

First, everyone who got an undergrad degree in computer science, MIS or electrical engineering and who wants to get more into the business side, form a group over there by the snack bar.

Next, those with the same background but who really want to keep going with the heavy techie thing, please stand over there by the door for a minute.

Last group, all you finance, accounting, manufacturing, organizational behavior and miscellaneous business types who know enough about technology to be dangerous, hang out by the espresso machine.

*Continued on page 81*







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## The top 10 Techno MBAs

Rank	School	Web page	Annual tuition	% of grads offered jobs	Starting salary
1.	<b>Massachusetts Institute of Technology</b> Cambridge, Mass. (617) 253-1000	<a href="http://web.mit.edu/sloan/www/">http://web.mit.edu/sloan/www/</a>	\$23,000	95%	\$89,000
2.	<b>Carnegie Mellon University</b> Pittsburgh (412) 268-2000	<a href="http://www.cmu.edu/">http://www.cmu.edu/</a>	\$21,400	100%	\$68,167
3.	<b>University of Texas at Austin</b> Austin, Texas (512) 471-3434	<a href="http://www.utexas.edu">http://www.utexas.edu</a>	\$10,600	100%	\$73,000
4.	<b>University of Minnesota</b> Minneapolis (612) 625-5000	<a href="http://www.umn.edu">http://www.umn.edu</a>	\$13,092	100%	\$35,000
5.	<b>University of Arizona</b> Tucson, Ariz. (602) 621-2211	<a href="http://www.arizona.edu/">http://www.arizona.edu/</a>	\$7,978	100%	\$43,000
6.	<b>University of Michigan</b> Ann Arbor, Mich. (313) 764-1817	<a href="http://www.umich.edu">http://www.umich.edu</a>	\$22,000	100%	NA
7.	<b>University of Pennsylvania</b> Philadelphia (215) 898-5000	<a href="http://www.upenn.edu">http://www.upenn.edu</a>	\$21,978	100%	\$80,077
8.	<b>Purdue University</b> West Lafayette, Ind. (317) 494-4600	<a href="http://www.purdue.edu">http://www.purdue.edu</a>	\$11,000	100%	\$50,000
9.	<b>University of Pittsburgh</b> Pittsburgh (412) 624-4141	<a href="http://www.pitt.edu">http://www.pitt.edu</a>	\$23,757	100%	\$50,175
10.	<b>New York University</b> New York, N.Y. (212) 998-4636	<a href="http://www.stern.nyu.edu/OS.html">http://www.stern.nyu.edu/OS.html</a>	\$21,342	95%	\$62,066

### Methodology:

This ranking was excerpted from *Computerworld's* 1995 MBA schools survey. Business school deans were asked to rank the top MBA/IS programs based on their reputation for IS scholarship, curriculum, faculty and students. The full survey can be found in the December 4, 1995, edition of *Computerworld*.

*Continued from page 79*

In the back, a question? Yes, social science and liberal arts majors can go to Group 3, sure. But remember: We're talking about some pretty heavy quant stuff here, so be warned.

OK, let's cut right to the chase: Groups 1 and 3 should stick around to hear about the Techno MBA. Group 2, you techno hard cores, see you in Santa Cruz.

What we have here is everything (well, almost) you want to know about Techno MBAs. So sit back, relax and listen up. This could be your next career move.

### What is a Techno MBA?

Different schools call them different things. In general, we're talking about hybrid graduate programs that combine a general business focus with a track, concentration or degree in IS. Some schools, including MIT and the University of Texas at Austin, offer separate tracks for end-user and information systems types. Others offer dual-degree options. For example, the University of Pittsburgh's Katz Graduate School of Business offers a two-year program that confers an MBA with a master's degree in information systems, for example.

### Why get one?

Schools promote these programs as a way to turbocharge your career, boost earnings, get new responsibility and open new doors. "In what other way would you move in two years from a \$35,000-a-year job to a \$70,000-a-year job?" asks Joseph White, dean of the University of Michigan Business School.

### What will I do during the program?

Curricula differ. But in general, you'll do the general MBA drill — accounting, finance and so on. But you'll also take five or more courses in project team leadership, business development leadership, systems analysis, databases, re-engineering, network architectures, etc.

### Who offers Techno MBA programs?

About 300 schools in the U.S. offer such programs. Check out any good guide to grad schools for a list. Titles differ, but look for things such as master's in information management, master of science in managing technology, information management concentration, and so on.

### What's their popularity?

Surprisingly, no one knows exact numbers. But you'll stand out: Techno MBAs will make up only about 2% to 3% of the 90,000 MBAs earned each year.

### What's the cost?

Gulp. Degrees at the best private schools can hit \$150,000 in tuition and expenses. Many excellent state schools are less expensive. Either way, you'll lose two years of wages (virtually all programs are full-time, two-year programs).

### When do I attend?

The strongest applicants, according to hiring managers, have three to four years of work experience. Ages 25 to 30 are prime. But don't wait too long, says Rouja Brzozowski, a New York-based IS career consultant. "Degrees are less important to [those] in their 40s and 50s," she says. "If you have 20 years of experience in a particular industry, an MBA may not do very much."

### Who hires Techno MBAers?

An estimated 40% to 50% of Techno  
*Continued on page 82*



*Continued from page 81*

MBA grads go to work as consultants. No wonder: Big national firms like Andersen Consulting can dangle six-figure salaries to top grads. Giants like Federal Express Corp., Ford Motor Co. and Citicorp are big employers, too.

"We're trying to be more customer focused, and we're more leaning toward the MBAs to bring balance," explains Miley Ainsworth, director of client/server development at FedEx.

Typical job titles include the following: project team leader, business analyst and re-engineering leader. Key roles as business development managers or executives in small high-tech start-ups are increasingly popular.

## What's the salary?

Grads from top schools average \$53,375 in starting pay. That's better than many other MBA specialties. Grads from top schools like MIT's Sloan School can bag nearly \$90,000 to start. That can help you forget a lot of sleepless nights pretty darned fast.

## Is it worth it?

Most say yes. "Absolutely," says Alan Berrey, age 30. Berrey left a programming job at IBM in Salt Lake City for Carnegie Mellon University's Graduate School of Industrial Automation. He had six job offers at graduation last year. Berrey took a programmer/analyst job in IS at Ford's customer service division in

Livonia, Mich. His current salary: "more than double" his old one, he says.

But others warn that the degree, though hot, is no surefire ticket to ride. (See "What schools don't tell you," below.)

## Is a more general MBA better?

For some techies, yes. Take Clayton Beale. After five years as a programmer/analyst at Ford, he enrolled in a general MBA program at the University of Michigan. "I already had a pretty strong technical background," Beale says, "so I took just two independent-study IS courses."

After graduation, he landed a job as a senior systems analyst at chemical maker Rohm and Haas Co. in Philadelphia. To-

## What schools don't tell you

**The future looks bright for Techno MBAs. But be aware of a few realities you won't find in many recruiting pamphlets.**

► **No shortcuts, no guarantees.** If you've gotten this far, you already know that degrees guarantee nothing (other than big loans). "These degrees are substantially oversold as far as what they are going to do for people's careers and lives," says Steve McMahan, who, as managing director at Source EDP in Boston, specializes in placing midlevel IS managers.

Even if Techno MBA graduates can leapfrog career steps, McMahan says, that may not be wise. "Long-term

success requires solid technical grounding. There are no shortcuts," he says.

► **You may regress.** Some former IS types "want to go back to being a programmer using MBA skills," says John Otroba, human resources manager for American Management Systems, Inc., a Virginia-based consultancy that hires 100 people with MBAs a year. "That's a real frustration for us."

► **Co-workers may hate you.** Techno MBAs, hot-shots in two fields, may get an extra dose of grief. Lower paid co-workers and old-

timers may resent you. Ditto for people passed over for that plum job you smartly snagged.

► **Many potential employers can't or won't afford you.** Are Techno MBAs worth \$30,000 a year more than a smart person with an undergrad degree? Some companies don't think so. "We'd rather hire good technical people and teach them business skills in-house," says a veteran IS recruiter at an international heavy equipment manufacturer.

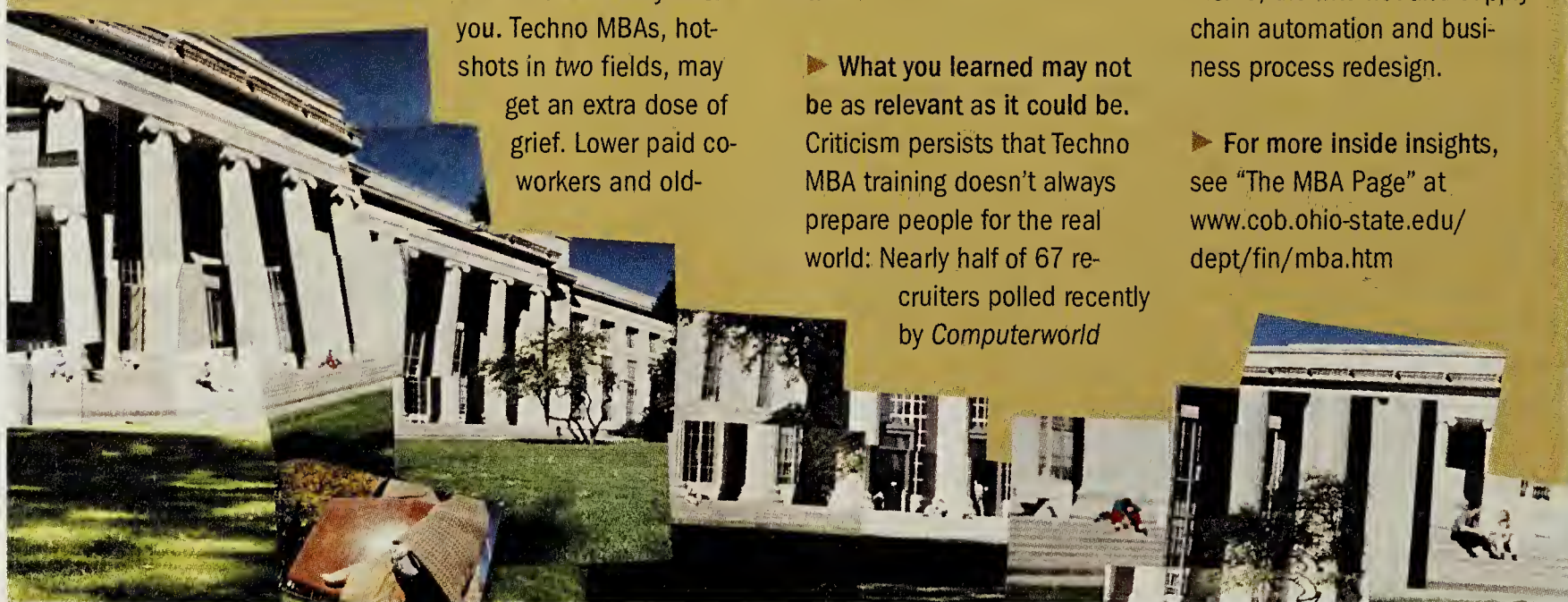
► **What you learned may not be as relevant as it could be.** Criticism persists that Techno MBA training doesn't always prepare people for the real world: Nearly half of 67 recruiters polled recently by *Computerworld*

said that Techno MBA programs could better equip grads by providing better hardware and software skills, along with more real-world experiences.

One IS recruiter for a large manufacturer complained about the schools: "Sometimes the factory doesn't talk to the buyers enough."

Top schools haven't taken such criticism mildly. They've strengthened ties to corporate partners and updated curricula to include electronic commerce, the Internet and supply chain automation and business process redesign.

► **For more inside insights,** see "The MBA Page" at [www.cob.ohio-state.edu/dept/fin/mba.htm](http://www.cob.ohio-state.edu/dept/fin/mba.htm)





## What to look for in a Techno MBA program

With more than 300 schools offering varying Techno MBA programs, it's important to do your homework. Here are some of the top factors to consider when searching for a Techno MBA school:

► **A solid IS program.** One or two IS stars does not a Techno MBA program make. Look for strong undergraduate and graduate IS departments, such as those at the University of Minnesota, Georgia State University and New York University.

► **Heavy investment in technology.** MIT, Carnegie Mellon University and University of Texas at Austin boast new, state-of-the-art securities trading floors on-site. World Wide Web-based classes and business simulations let Carnegie Mellon students interact with fellow students in Japan and Sweden.

► **Strong ties to industry.** MIT has signed up two dozen, deep-pocketed corporate mega-sponsors for its massive new "Inventing the Organization of the 21st Century Partnership." The chairmen of Xerox Corp. and American Management Systems sit on Carnegie Mellon's board. Get the picture?

► **Real-life experience.** "The value of an MBA program is related to its relationship to reality," declares William Ziegler, director of campus recruiting for Andersen Consulting in New York. He should know; the firm's U.S. technology practice will hire

450 MBAs this year.

Top schools are scrambling to show that they hear the customer's voice. They're exposing Techno MBA students to as much real-world work experience as they can find.

For example, MIT sends students out to work for 25% of their time with local businesses. And for a recent project at Ingersoll-Rand Co. in Roanoke, Va., "we took 45 car trips there," recalls Ilker Baybars, deputy dean at Carnegie Mellon. "We had to come up with solution software and methodologies to tackle a flexible manufacturing project."

day, he says it was the right move. "Now I've got the best of both worlds."

As a parting thought, keep in mind these words from one big consulting re-

cruiter: "Ultimately, we look at each individual, rather than a school and the IS program."

So the most important letters here are

not M-B-A, but Y-O-U. ☼

*Maglitta is a former Computerworld senior editor, corporate strategies.*

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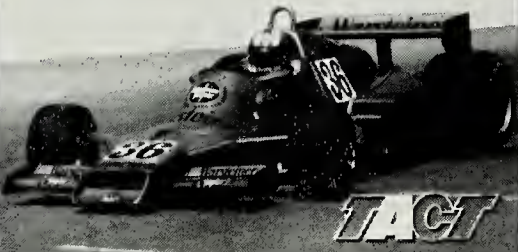
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## Q. Tell me about yourself.

**A.** "I come from a large family, and I think that's why I've always been a people person. I'm involved with a few clubs at school that keep me pretty busy. I'm very organized, so I get volunteered to handle a lot of projects for these groups. I also like to read: computer and business magazines as well as science fiction and mysteries."

► *Talk about personal characteristics that translate into IS career strengths: teamwork, people skills and problem-solving abilities. Technicians must do a lot of user support and often work on project teams.*

## Q. Who was your most influential teacher in school, and why?

**A.** "Probably my math teacher. He helped me to think beyond the status quo. He often said, 'Are there any other possibilities that could work here?' This helped me to develop my strong analytical skills and to excel in problem solving."

► *Be prepared for questions like this, so they don't catch you too off-guard. Tie the answer to your reasons for pursuing an IS career.*

## Q. What were your favorite subjects in school and why?

**A.** "My computer science classes. I also took some marketing classes to get a better understanding of what companies are trying to do with Web sites. I've taken a wide variety of technology courses, plus math and business. And I like creative writing courses."

► *You don't have to shine in all of these courses, but show a good mix of communications and business skills and a broad expo-*

*sure to technology skills.*

## Q. What do you know about our company, and why do you want to work here?

**A.** "I understand that your company is the fifth largest financial investment firm in the industry, with revenues of about \$200 million. On your company's

Web page, I saw some opportunities in the IS department. Having strong mathematical skills, I would like to work for an organization like yours because I see a long, challenging technical career here."

► *You MUST do your homework in visiting the company's home page on the Internet and have an understanding of the company's use of technology.*

## Q. Tell me about a conflict you encountered with someone, and how you handled the situation.

**A.** "I sat down with the other person and asked what his issues were. Then I told him mine. We talked about which were the most important and what we could compromise on. We started by looking for any common goals and placed those first. Then we decided together what to give up and what to keep. We both felt we were winning something, and were satisfied."

► *Almost a trick question, this is one of the toughest interview questions. Never speak*



FPG INTERNATIONAL CORP.

*negatively about anyone. Conflict resolution skills are extremely important for IS professionals to work well with users. The answer you give here could largely determine a job offer.*

## Q: What are your weaknesses?

**A.** "I can be pretty compulsive about my work, so that I can't stop until the job is perfect. Also, I plan to improve myself this year by taking a class in public speaking."

► *Choose a goal that would enhance your professional career but not be considered a deficiency for that particular opportunity. One strategy is to give a personal weakness that is considered a professional strength.*

*Weldon is a Computerworld senior editor, careers.*

Special thanks to the following people who provided advice for this article: John DeGolyer, School of Law, University of California/Los Angeles; Lina Fifard, The Partners; Tod Kijauskas, American Greetings; Jana Kuehler, Roman International; Julie Schooler Litvin, Micro Search; Peg Nicholson, Titleist and FootJoy Worldwide; Julie A. Yancey, Federal Express Corp.





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AND HAVE AN INTEREST IN  
THE GRADUATE EDUCATION  
PROGRAMS LISTED WITHIN  
THESE PAGES PLEASE MAIL  
THE HANDY RESPONSE CARD  
BOUND INTO THIS SECTION.



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of Management



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Circle G7



# Computerworld's 9th annual Campus Recruitment Edition. Graduate Education Postcard 1996-97

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Your ☐ current college/university or ☐ alma mater: \_\_\_\_\_

Is the school name part of address above? ☐ Yes ☐ No

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Your current or previous program: ☐ BA ☐ BBA ☐ BS ☐ Master's ☐ Ph.D  
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☐ Information Computer ☐ Other

When do you expect to enroll? ☐ September 1997 ☐ Other

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Best time to call: \_\_\_\_\_ ☐ AM ☐ PM Is this ☐ home ☐ work ☐ school?

Proficiencies: Is English your ☐ first or ☐ second language? Do you use a computer?

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Please list names of schools that you are personally writing or calling: \_\_\_\_\_

## Graduate Education 1996-1997

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G 5	G 11
G 6	G 12

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When do you expect to enroll? ☐ September 1997 ☐ Other

Permanent Phone (Include Area Code): \_\_\_\_\_

Best time to call: \_\_\_\_\_ ☐ AM ☐ PM Is this ☐ home ☐ work ☐ school?

Proficiencies: Is English your ☐ first or ☐ second language? Do you use a computer?

☐ Yes ☐ No If Yes, for ☐ Word processing, ☐ Data processing, ☐ Graphics, ☐ Programming, ☐ Other \_\_\_\_\_

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## Graduate Education 1996-1997

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Circle G11



# Hire me

We asked YOU where YOU want to work. We asked THEM what it's like. The Top 10 companies you say you'd like to work for.

By Rochelle Garner

**S**o you've decided to major in computer science or engineering? Congratulations are in order for choosing a field that's practically guaranteed to deliver a lifetime of financial security. And we mean security. Because while the 10 most-desirable technology employers cited in our survey of college students are coy about their entry-level salaries, all say they are "competitive with the industry." That means starting salaries from the mid-\$30s to the mid-\$50s.

Naturally, there's a catch: To nab a job with these companies, you need more than just a good grade-point average. Today's candidate pool is brimming with students whose re-

sumes include summer jobs, co-ops and volunteer work.

The upshot? If you're a sophomore or a junior, there's still time to beef up your resume. But if you're a senior, well, you may have to settle for a less desirable employer.

Timing is everything.

## Your Top 10 choices

- 1 IBM
- 2 Microsoft Corp.
- 3 Intel Corp.
- 4 AT&T Corp.
- 5 Hewlett-Packard Co.
- 6 Motorola, Inc.
- 7 Andersen Consulting
- 8 Sun Microsystems, Inc.
- 9 Digital Equipment Corp.
- 10 Apple Computer, Inc.



1

## IBM

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**Current hiring numbers:** 2,000 entry-level positions this year, nationwide

**Titles/positions:** Practically every software skill.

It's no coincidence that, for the fifth straight year, IBM tops our list. IBM pays too much attention to recruiting for results to be otherwise. And the commitment to new graduates comes from the top. CEO Louis Gerstner, speaking at an IBM recruiters conference recently, stressed the importance of bringing new vitality to IBM's ranks.

One example of that vitality is

Michael Mattinson, a systems management integrator fresh out of New York University with a bachelor's degree in computer science. Mattinson, who started work at IBM's Raleigh, N.C., facility in June, is energetic, articulate and eager to stay on top of new technologies — just the attributes IBM wants.

"My recruiter told me he wanted someone who would continue learning," Mattinson says. In fact, Mattinson couldn't wait to master new technologies. In addition to his regular duties of AIX support and systems administration, Mattinson has — on his own time and initiative — picked up two new languages during his first two months of work.

"That's the way it moves here," he says. "As long as you get your work done, IBM gives you free rein in what you do and how you do it."

The situation is a bit different for Denise Riviere. Since arriving at IBM's Chicago offices July 1, Riviere has spent eight hours a day in training. That train-

ing, on the art and science of becoming a network account manager, will last six months and include lectures, time in the field with an assigned mentor and self-study.

"When I finish, I'll be a consultant, helping customers solve their networking problems," Riviere says.

They have different interests, majored in different disciplines (Riviere has an MBA in marketing) and will face dramatically different business demands. And yet Riviere and Mattinson share one critical attribute: impressive extracurricular credentials.

While in college, Mattinson worked as assistant manager at three retail stores, showing leadership and teamwork skills. Riviere served four internships, including eight months as a sales representative for pharmaceutical manufacturer Pfizer, Inc.

It's their extracurricular work, Mattinson and Riviere agree, that got them into the relaxed, yet dynamic, culture that is the new IBM. \*

2

## Microsoft Corp.

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**Web site:** [www.microsoft.com/jobs/](http://www.microsoft.com/jobs/)

**Current hiring numbers:** About 300

**Titles/positions:** Software design engineers, software test engineers, program managers, support engineers.

If you're looking for work on big, honkin' software projects, Microsoft Corp. just might be the place for you. What Microsoft wants from you, says campus recruiting manager Susan Stoltman-DeCroix, is the ability to think through problems.

It sounds simple enough. But what does that mean? "We look for folks who know how to apply the knowledge they have," Stoltman-DeCroix says. "And we find how well they apply that knowledge

by the way they solve the problems presented by their interviewer." Think of it as a pop quiz.

Extra credit comes from the kinds of experience you've had working with others. "All of the individuals we hire will work on a team of some sort, and the ability to share information, to work with a variety of personalities, and to show adaptability are all really important," Stoltman-DeCroix says. "For a large-scale software project, which is essentially what they would work on at Microsoft, the dependencies are very high. So we look for people who've had experience relying on others and being relied on in a team situation."

Obviously, being a team player matters — as does the ability to communicate and the desire to constantly add to

your knowledge base. Those are the soft skills prized at Microsoft. But the company looks for hard skills, too. You know, things like knowing C or C++. And while few colleges offer courses in Windows development or Web design, Microsoft definitely takes notice when students take the initiative to add those skills to their resumes. It shows curiosity and enthusiasm — traits that often

translate into the kinds of interests that make for a well-rounded person.

"We don't instruct interviewers to look for the well-

rounded person, but the person who stands out in technology usually stands out in all areas," Stoltman-DeCroix says. "And we're looking for the standout." \*

**"We look for folks who know how to apply the knowledge they have."**

**— Susan Stoltman-DeCroix**

**Microsoft Corp.**

*More on page 93*



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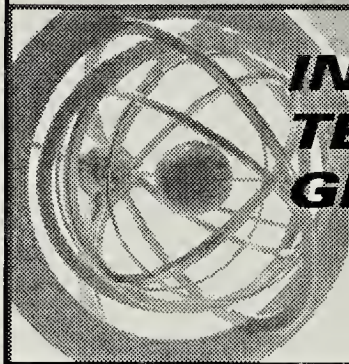
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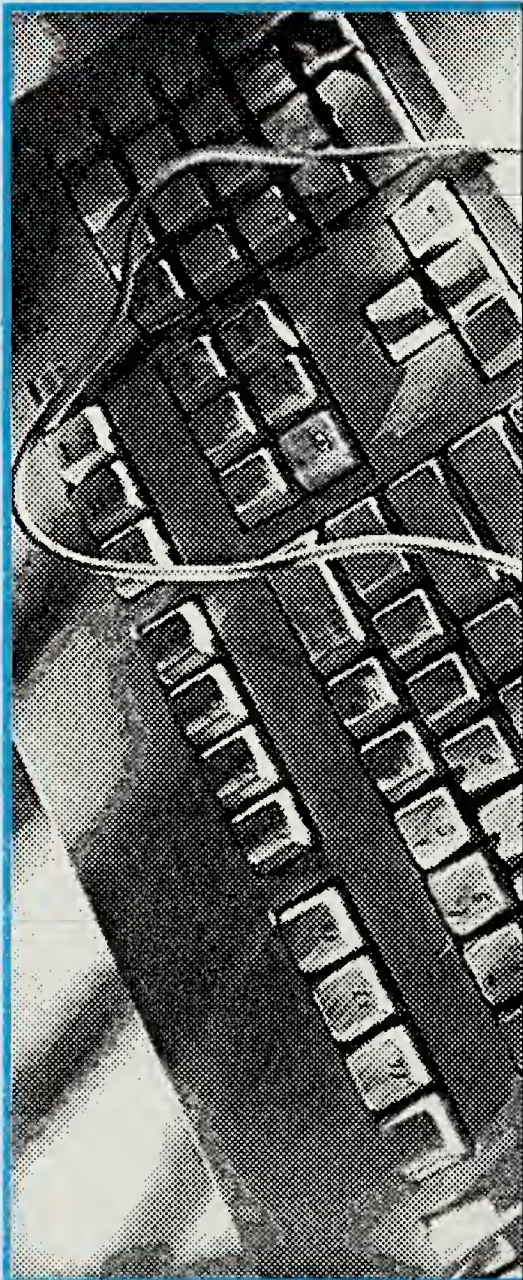
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3

## Intel Corp.

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It's good to be king. And in the semiconductor business, that title definitely belongs to Intel Corp. For those who help make Intel the master of all it surveys, daily life is a combination of technical and communication demands.

Just ask Anu Murty. Murty graduated from the University of California at

Berkeley last December with a bachelor's degree in electrical engineering and computer science. She is currently a graduate engineer on rotation at Intel's Santa Clara, Calif., campus. Before that, though, she had both a summer internship and a co-op job at Intel.

Remember the debacle over the flawed Pentium chips? Murty was an intern then, working for Intel's technical support group. She handled a flood of calls from irate users who were furious the chips might err when making certain mathematical computations.

"We had a lot of classes on stress release and classes on dealing with customers who are angry at you," Murty says. Such classes are not the norm, but others are. Some required seminars that reveal much about the Intel culture: "Effective Meetings," "Inside Intel" and "Constructive Confrontation."

Murty, an energetic engineer, was ac-

cepted into Intel's rotation program, which allows participants to choose three areas of the company they'd like to explore for four months each. She's now on her second stint — as a verification and synthesis engineer — but it was her first rotation — law — that captured her heart. Working for Intel's legal department, Murty explored competing companies' technologies for potential patent infringement. She has since been accepted into law school at Santa Clara University and hopes to join an Intel program that will pay her four-year tuition and her salary as she works for Intel's legal counsel.

Despite her extraordinary career path, Murty is in many ways a typical Intel employee: open, aggressive in attaining her goals and part of the team. That shouldn't be surprising, really. With its classes and accent on team building, Intel takes pains to cultivate those traits. \*

*More on page 95*

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4

## AT&T Corp.

**AT&T Employment Office**  
**100 Southgate Parkway**  
**Morristown, N.J. 07960**

**Phone:** (800) 858-5417

**Web site:** [www.att.com/hr/employment/matrix.html](http://www.att.com/hr/employment/matrix.html)

**E-mail:** [attjobs@hrdiv.att.com](mailto:attjobs@hrdiv.att.com)

**Current hiring numbers:** About 150 entry-level positions in AT&T Labs; about 100 elsewhere in the country

**Titles/positions:** A range of positions in fields such as wireless communications, software development, microelectronics and photonics.

**H**aving shed its computer business (NCR) and hardware business (Lucent Technologies), AT&T is now focusing on online communications. The result: The art and sci-

ence of software development is in particular demand.

"We generally recruit people in the areas of computer science, electrical engineering and human factors engineering," says Amy Muller, a research director at AT&T Labs who also volunteers for campus recruiting. "We look for people who have done well in school and who have a passion for technology. But that passion has to be explained to people beyond just other nerds. This is technology that people will actually use."

### Communication key

Clearly, the communications company values the ability to communicate. How does a student prove that capability? For entry-level candidates — those with bachelor's and master's degrees — the answer lies in the way they describe their previous job experience. At the Ph.D. level, candidates undergo a grueling

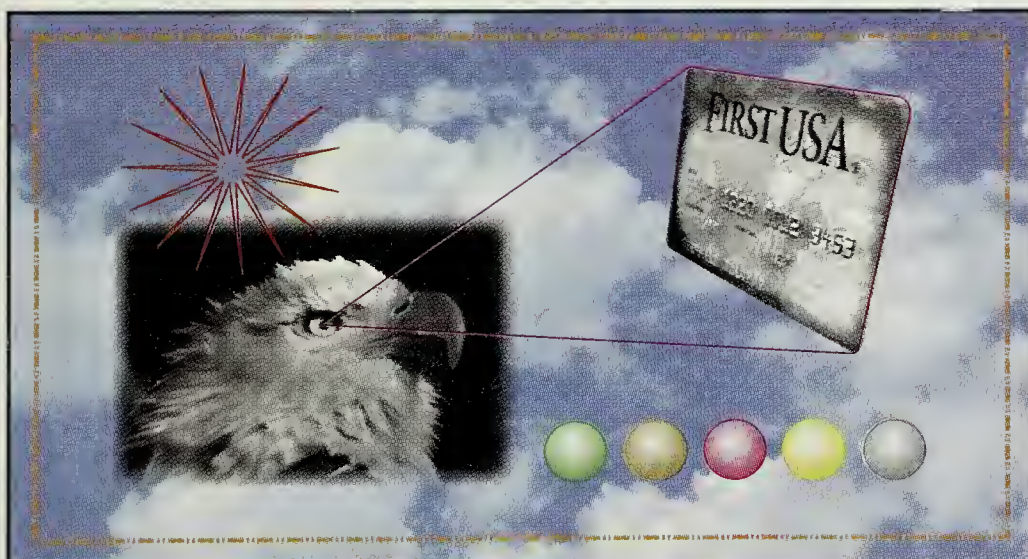
days-long process that includes an hour-long thesis presentation.

That presentation, along with his post-doctoral research on neural networks and machine learning, helped Lawrence Saul nab his job as a researcher at AT&T's Speech and Image Processing Services Research Lab.

"In many ways, AT&T is similar to academia, because I have the freedom to choose what sorts of projects I want to work on," says Saul, who describes the corporate culture as relaxed yet stimulating. However, Saul says, AT&T offers a critical distinction over his work at MIT: Collaboration at AT&T is between peers, as opposed to the vertical food chain that connects professors to their graduate students.

"I interviewed at a lot of industrial labs, and I found more intellectual freedom at AT&T," Saul says. "I believe I can do better research here."\*

*More on page 97*



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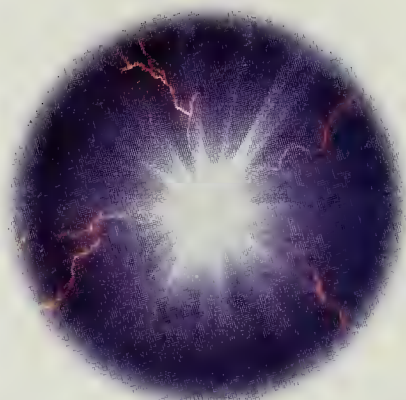
To be considered, please fax or send your resume to: First USA Bank, Human Resources/CW, 201 North Walnut Street, Wilmington, DE 19801, Fax: (302) 433-8457. E-mails are also being accepted at: [fusahr@omni.voicenet.com](mailto:fusahr@omni.voicenet.com) (make subject CW, ASCII text only).

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## 5 Hewlett-Packard Co.

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**3000 Hanover St. M- 20APP**  
**Palo Alto, Calif. 94304-1181**

**Phone: (415) 852-8473**

**Fax: (415) 852-8138**

**E-mail: resume@HP.com**

**Web site: www.jobs.hp.com**

**Titles/positions:** Networking, people with computer science or electrical engineering backgrounds.

It's been pondered, probed and scrutinized. Analysts make a living analyzing it. Writers turn a profit writing about it. And management consultants consult on how to achieve it. "It" is the "HP Way," a corporate culture famous for helping employees balance the contradictory demands of life and work. Want to telecommute? No problem. Pursue new career paths? The Palo Alto, Calif.-based company will help.

"The greatest thing about HP is that they really care about their employees," says Michael Yee, an information technology specialist who's been with Hewlett-Packard Co. for about a year. "Everyone around me is excited about working at a good company and at the opportunities we have to excel. HP lets you develop into what you want to become — and on top of that, you get a paycheck!"

Small wonder, then, that HP is a workplace in demand — and that HP's managers can afford to be picky.

"I'm most interested in a person's soft skills, like teamwork, leadership, innovation, flexibility and communication," says Marty Chuck, manager of HP's worldwide financial reporting systems. He also leads HP's recruiting efforts at California Polytechnic State University at San Luis Obispo.

How can a recruiter tell when candidates possess such character traits? Through students' previous jobs and team-building classes — accent on the

plural. "It's no longer acceptable to have one summer internship. They have to have multiple," Chuck says.

That describes Yee to a tee. Quite frankly, Yee was too busy with his jobs and his volunteer work to earn much higher than a 2.9 grade-point average. He worked summers in San Ramon, Calif., for Pacific Gas & Electric Co.'s research and development department and remotely for PG&E during the school year, writing small applications and building on top of existing databases. That was between his two volunteer jobs.

Just how important are candidates' technical skills? That depends on the company doing the hiring. But Chuck's top criterion is the desire to keep learning. "When I talk to technical students, they think they're the greatest thing since sliced bread because they understand C, C++ or Java," he says. "Well, so what? The important thing in business is keeping pace with change."

Overachievers definitely need apply. ✱

## Companies 6-10

### 6 Motorola, Inc.

Motorola has 10 autonomous business units, operating in more than 25 locations around the country. Each handles its own hiring. For information on the kinds of jobs available, point your Web browser to:  
**www.mot.com/UR/Intro1.html**

### 7 Andersen Consulting

**Contact:** William Ziegler  
**1345 Avenue of the Americas**  
**New York, N.Y. 10105**  
**Phone: (212) 708-4383**  
**Fax: (212) 581-1507**  
**Web site: www.ac.com/**

**Current hiring numbers:** Approximately 3,000 entry-level positions are open in the U.S. Half are for graduates in computer science and computer engineering.

**Titles/positions:** Entry-level consultants, who work on a variety of business issues at client sites across a variety of industries.

### 8 Sun Microsystems, Inc.

**University Relations**  
**2550 Garcia Ave.**  
**MS-MTV04-118**  
**Mountain View, Calif. 94043-1100**  
**Fax: (415) 336-3701**  
**E-mail: universityrelations@sun.com**  
**Web site: www.sun.com/corporateoverview/CorporateEmployment**

**Current hiring numbers:** Approximately 300 full-time, 200 intern positions.

**Titles/positions:** Entry-level engineering positions in desktops, graphics, Java programming; electrical engineers, systems support engineers. Also looking for MBAs for finance, marketing and operations.

### 9 Digital Equipment Corp.

**Computer Systems Division**  
**Dept. DEC**  
**200 Forest St.**  
**MR01-3/L32**  
**Marlboro, Mass. 01752**  
**E-mail: jobs-us-computersystems-college@digital.com**

**Digital Semiconductor**  
**University Relations**  
**77 Reed Road**  
**HL02-2/K12**  
**Hudson, Mass. 01749**  
**E-mail: jobs-us-semiconductor-college@digital.com**  
**Web site: www.digital.com/info/careers/newgrad.htm**

### 10 Apple Computer, Inc.

**Attn: Professional Employment**  
**1 Infinite Loop, MS: 75-2CE**  
**Cupertino, Calif. 95014**  
**Fax: (408) 974-5691**  
**E-mail: applejobs@apple.com**  
**Web site: www.apple.com/employment**  
**Current hiring numbers:** About 200 entry-level jobs.  
**Titles/positions:** Software engineer, communications engineer, Unix network engineer, component engineer, electrical engineer, ASIC designer. ✱

*Garner is a freelance writer in San Carlos, Calif.*



# Interview: Dave Barry

Fans of humor columnist Dave Barry recognize him as the guy who can find hilarity in such topics as Comet Hyakutake, Beach Boys lyrics and methane-engorged cattle.

But the Pulitzer Prize-winning writer, whose column in the Miami Herald's *Tropic* magazine is syndicated in hundreds of newspapers, is also a laptop-toting technoid-in-training.

In fact, his 17th book, *Dave Barry in Cyberspace*, will no doubt do for our understanding of technology what Rush Limbaugh has done for rational debate.

*Computerworld* Editor Paul Gillin recently caught up with Barry and his Toshiba Protege in New York, where the author was shamelessly promoting his recent book *Dave Barry's Guide to Guys*. Barry distinguishes men from guys thusly: Christopher Columbus was a man. Whichever astronaut hit the first golf ball on the moon was a guy.

**CW: Do you think computers are funny?**

**Barry:** They're a lot like cars. You always want a new and faster one, but you don't know for what. Like, I don't know what RAM is, but I know I need a lot. They're funny until you suddenly discover they just locked up 500 words into an 800-word column, and you haven't saved. Then they're not funny; they're tools of Satan. Really, Satan will come through the wire, and sometimes you'll actually see your monitor spin around like in *The Exorcist*.

**CW: Do you think they make people more productive?**

**Barry:** Yes, but there's a steep learning curve. There are a lot of people who get the computer and end up diddling with it for the rest of their careers. We have guys like that at the *Miami Herald*. They used to be functioning, practical reporters, and they mutate ... from journalists into computer people.

Windows is a great tool for them. It offers you so many things to do that aren't

productive. You can not only change the screen colors, but the icon size and typeface ... all the things that have nothing to do with writing.

**CW: If you were in gym class with Bill Gates, what would you do with him?**

**Barry:** I'm sure what all his other friends did: hang him upside down over the toilet. Wouldn't it be funny if it turned out that when Bill was in high school, he was a big jock and a stud muffin? I don't think that's likely, though. At Comdex, he was like Elvis. In fact, in my book, I have a part called "Elvis in the Desert." He was huge.

**CW: What was the Comdex trade show like for you?**

**Barry:** Mars. At one point ... I'm carrying this 800-pound bag of literature, and this woman with a pretty much translucent blouse comes up to me and [gets right in my face and] goes, "Client/server?" I don't even know what that is. And I'm one of those people who likes to go into CompUSA and just look at stuff. To be in a place where people were way beyond where I was, I felt almost normal.

I was struck by the high level of greed. I thought it was going to be more people into the coolness of computers. I didn't realize that everyone wants to be Bill Gates. I read about this Netscape guy who's 11 months old, and he's worth \$100 trillion.

But I did think it was interesting that this event so devoted to avoiding the confines of the physical world is held in a place where you cannot get a cab unless you have a machine gun.

**CW: Your recent book is about guys. Which is a guy's computer: the PC or the Macintosh?**

**Barry:** No question. The PC is a guy's computer because you have to screw around with it and hop it up. With a Mac, you buy this wonderful, functional thing out of the box, but somebody else got to do all the hard stuff. What fun is that? Give me a computer you have to wrestle with, and that's a guy's PC.

**CW: Our readers are data processing people. Are they guys?**

**Barry:** Oh, definitely. The computer world is guy-infested. It's one of the fields where you can be relentlessly immature and still be highly successful. How you present yourself personally is irrelevant. I mean, [look at] Bill Gates. Being a suave, smooth salesperson isn't important.

**CW: Do you ever worry about your son being on America Online as much as he is?**

**Barry:** No, I don't. I have the same attitude about television or movies or books. To me, that's all learning, and I trust him to figure out what's right and wrong. I'm sure he sees X-rated stuff, and any parent who thinks their child doesn't is deluded. The important thing is that when he sees something sick, he knows that it's sick.

**CW: Do you have any opinion on the Communications Decency Act?**

**Barry:** I think it's stupid and a waste of time and money. Kids are learning to make bombs on the Internet? Well, the same thing has been available on paper for a long time. It's ridiculous to pick this particular medium just because it's the most publicized one. Can you imagine if the government had regulated the Internet from the start? "We hope that by the year 2007, we'll be able to show you pictures, just as soon as we get approval from the House Agriculture Subcommittee."

**CW: Would you share your E-mail address?**

**Barry:** No! Somebody once printed it in a book, and I got hundreds of messages a day, all of which came down to "Are you really Dave Barry?" And if I said yes, they said, "No, you're not." ☼

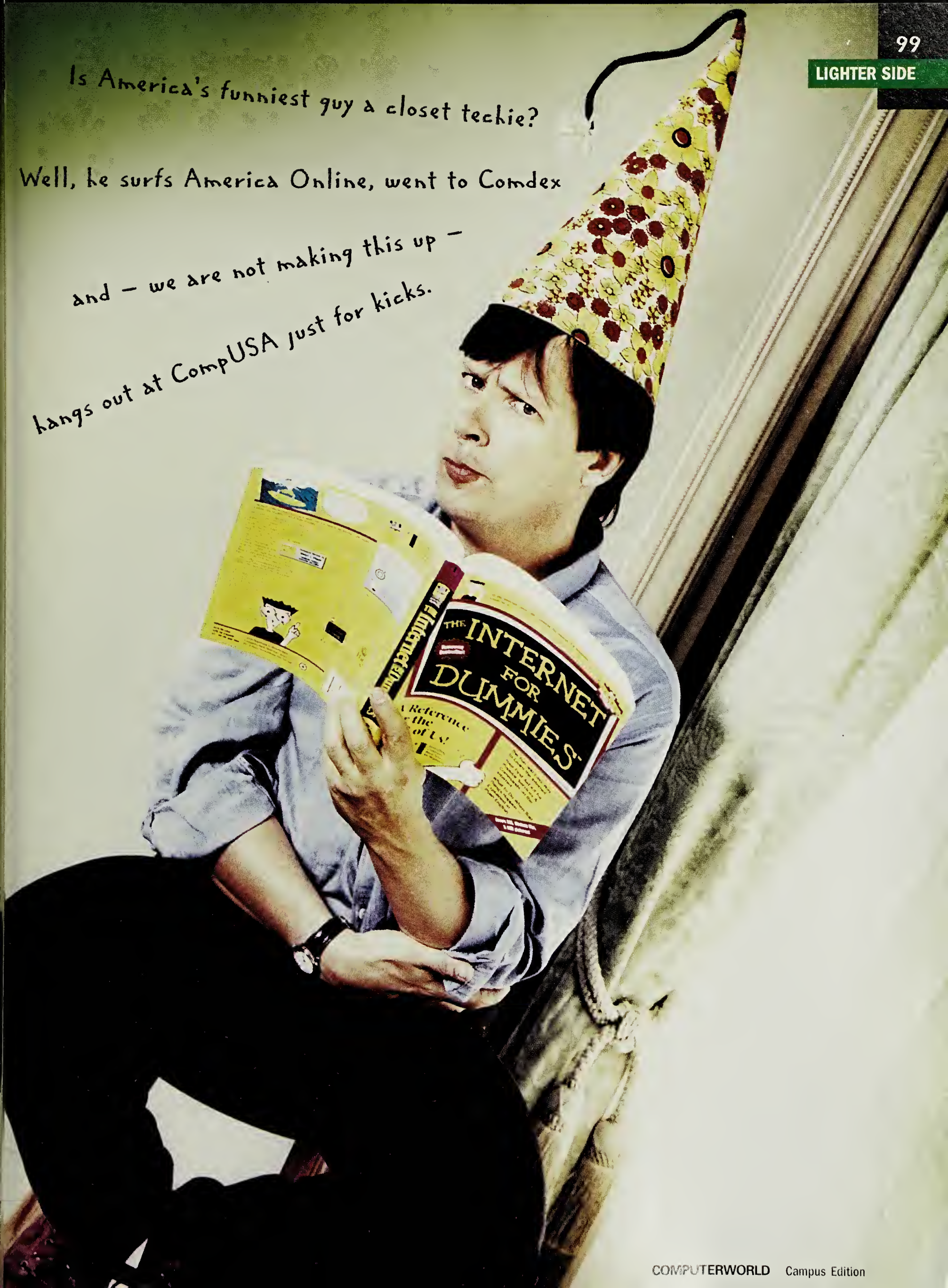


Is America's funniest guy a closet techie?

Well, he surfs America Online, went to Comdex

and — we are not making this up —

hangs out at CompUSA just for kicks.





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# Look it up!

Pounding the pavement has taken on a new meaning: You can get results, and mountains of job information, by surfing the information superhighway – and it may even save your soles.

## GET A JOB!

If your degree is in a computer-science-related field, or in electrical engineering, those three words shouldn't put fear into your heart.

The way the statistics read, careers in information systems and engineering are hot right now, and there's no shortage of places to look for these jobs.

Students and graduates who use the Internet will soon discover that there are World Wide Web sites that list jobs and company profiles, post resumes and offer graduate and internship opportunities. Some of those online sites include:

► **The Job Catapult**  
(<http://www.jobweb.org/catapult/catapult.htm>) Located on JobWeb, this site offers all kinds of resource sites: discussion groups, career fairs, news, job listings, industry news, information on associations.

► **Adam's Job Bank Online**  
(<http://www.adamsonline.com>) Provides a job bank and resources, including information on books, conferences, fairs, internships, Internet use, resume examples and more. Very comprehensive.

► **The Riley Guide:**

## Employment Opportunities and Job Resources on the Internet

(<http://www.jobtrak.com/jobguide>) An excellent place to start. Provides advice on how to negotiate the Internet in your searches and how to write resumes; offers sites for cyberjob fairs, information on professional associations, recruiters, internships, tips, graduate information and job listings.

► **Monster Board**  
(<http://www.monster.com>) An enormous job-search site. Key words narrow searches by discipline, job title, location or company. Resumes are kept online and may be sent to companies, or users can E-mail employers directly.

► **CareerMosaic**  
(<http://www.careermosaic.com>) Has job listings, employer profiles, information on job fairs, job search and resume pointers and "College Connection," which caters specifically to students, listing opportunities such as entry-level jobs, co-ops and internships.

## OTHER BIG SITES FOR JOB LISTINGS:

► **America's Job Bank**  
(<http://www.ajb.dni.us>) This U.S. Department of Labor site offers nationwide listings, separated by profession and state.

► **The Online Career Center** (<http://occ.com>)

More than half its postings are IS/IT related. Many ways to narrow search.

► **E-Span Online Employment Connection**  
(<http://www.espan.com>) Has a technical orientation, protects confidentiality, automatically forwards matching positions.

► **CareerSite**  
(<http://www.careesite.com>) Automatically matches job seekers with jobs that fit their profile, via E-mail.

► **Yahoo**  
(<http://www.yahoo.com/business/employment/jobs>) Links to many different databases and resources all around the world.

► **Jobs Online**  
(<http://www.ceweekly.wa.com>) This service of Contract Employment Weekly lists contract technical work in computer-related fields. Non-subscribers can access only one-third of job listings.

► **TechCareers**  
(<http://techweb.com/careers/careers.html>) Part of TechWeb, it caters specifically to the computer industry, with stories, job listings, salary info and other links.

► **CareerWeb**  
(<http://www.cweb.com>)

Offers listings by professional category and location, posts resumes, provides employer profiles. Large listing of IS professional positions.

## ALMA MATER MATTERS

Take advantage of services and information in your campus and department placement offices, but also keep in mind that many universities provide information online about careers, education, research resources and using the Web. Here are four sites that are especially useful when surfing for information on IS careers:

► **Colorado State University SavvySearch**  
(<http://guaraldi.cs.colostate.edu:2000>) University-maintained database of computerscience jobs.

► **Stanford University**  
(<http://rescomp.stanford.edu/jobs>) Offers resources and direct interfaces to job-search sites such as Monster Board, CareerMosaic, Online Career Center and others.

► **Computer Science Research Jobs Listing**  
(<http://www.cs.uiowa.edu/~mfleck/vision-html/jobs.html>) From the University of Iowa, this site points mostly to research jobs for those with a master's degree or Ph.D. in computer science, but there are listings for jobs requiring only a bachelor's degree.



### ► AFTER READING COMPUTERWORLD'S "100 BEST PLACES TO WORK"

(see page 21), be sure to check the Web sites of companies you may want to work for. (<http://www.companyname.com>) Employment opportunities are often listed there.

### THERE'S STILL THE NEWSPAPER

If you're a traditionalist, here's a new twist on an old job-hunting strategy: At least six major newspapers (The Boston Globe, The Chicago Tribune, The New York Times, The Washington Post, The San Jose Mercury News and The Los Angeles Times), plus 11 others, now publish their classified advertisements on the Web as well.

(<http://www.careerpath.com>) More than 100,000 ads, and you won't even get newsprint on your nose.

### A WHOLE LOT MORE THAN JUST IDLE CHATTER

Don't forget to check out usenet news groups pertaining to your field and the companies that do business in that arena. Not only will you learn about your field and connect with people who have similar careers, goals and interests, but sometimes you can also get employment information. Bulletin boards to visit include the following:

**USENET:mlsc.jobs.offered**

**USENET:mlsc.jobs**

**USENET:biz.jobs.offered**

**USENET:sci.research.careers**

**USENET:mlsc.jobs.resumes**

**USENET:mlsc.jobs.contract**

### "ALLOW ME TO INTRO- DUCE MY ASSOCIATE ..."

Many professional associations can be located on the Web, as well as through your university's resources. These organizations provide services to members in the form of news, professional development, forums, conferences, mentoring programs and publications. They also provide information on jobs, internships and scholarships. Some groups have student chapters. The following are some organizations that pertain to high-tech industries:

#### ► Computing Research Association (CRA)

(<http://cra.org>)  
1875 Connecticut Ave. NW,  
Suite 718  
Washington, D.C. 20009  
Phone: (202) 234-2111  
Fax: (202) 667-1066  
E-mail: [info@cra.org](mailto:info@cra.org)

#### ► Computing Technology Industry Association (CompTIA)

(<http://www.comptia.org>)  
450 E. 22nd St.  
Suite 230  
Lombard, Ill. 60418  
Phone: (708) 268-1818

#### ► Institute of Electrical and Electronics Engineers (IEEE) Computer Society

(<http://www.computer.org>)  
IEEE Membership  
P.O. Box 7007  
Paterson, N.J. 07059-7007  
Phone: (800) 678-IEEE  
Fax: (908) 981-0225  
E-mail: [member.services@ieee.org](mailto:member.services@ieee.org)

#### ► Association for Computing Machinery (ACM)

(<http://www.acm.org>)  
1515 Broadway, 17th Floor  
New York, N.Y. 10036-5701  
Phone: (212) 626-0500  
Fax: (212) 944-1318  
E-mail: [acmhelp@acm.org](mailto:acmhelp@acm.org)

#### ► Job Databases by Professional Societies and Other Institutions (<http://www.rpi.edu/dept/cdc/society>)

Maintained by the Career Development Center at Rensselaer Polytechnic Institute, this site is an index of professional societies and institutions and will link you to their Web sites and job listings. Stop here and kill two birds with one stone.

#### ► INTERNSHIPS

Internships are still a good way to gain hands-on experience and knowledge, get your foot in the door and maybe even earn some money. One of the many university sites with a good page for internship listings is the University of Virginia. (<http://minerva.acc.virginia.edu/~career/intern.html>). Internships are broken down by state, industry and organization. The site also lists several search engines to find internships. Check out the larger job-search sites, your career planning center and your academic department for similar information. And be sure to go directly to company Web sites in your area of expertise and interest for internship info.

### RECOMMENDED READING

These books are likely to be available at your placement office or in your campus library:

**The On-Line Job Search Companion**, by James Gonyea (New York: McGraw-Hill, 1995).

**Be Your Own Headhunter Online**, by Sylvia Tierstein and Pam Dixon (New York: Random House, 1995).

**Finding a Job on the Internet**, by Alfred and Emily Elossbrenner (New York: McGraw-Hill, 1995).

**Electronic Job Search Revolution**, by Joyce Lain Kennedy and Thomas J. Morrow (New York: John Wiley & Sons, 1996).

**Electronic Resume Revolution**, by Joyce Lain Kennedy and Thomas J. Morrow (New York: John Wiley & Sons, 1996).

**Using the Internet in Your Job Search**, by Fred Jandt and Mary B. Nemnich (Indianapolis: Jist Works, 1995).

**Hook Up, Get Hired/The Internet Job Search Revolution**, by Joyce Lain Kennedy (New York: John Wiley & Sons, 1995).

**America's Top 100 Internships**, by Mark Oldman and Samer Hamedah (New York: Villard Books, 1996).

*Continued on page 104*



# Look it up (some more)

*Continued from page 103*

## MINORITY SITES

### ► National Action Council for Minorities in Engineering.

(<http://www.nacme.org>)

3 West 35th St.,  
New York, N.Y. 10001-2281  
Phone: (212) 279-2626

Seeks to increase the participation of underrepresented minorities in engineering and science. Conducts research, provides student support (including financial aid), sponsors conferences.

### ► National Society of Black Engineers

(<http://www.nsbe.org>)

1454 Duke St.  
Alexandria, Va. 22314  
Phone: (703) 549-2207

Fax: (703) 683-5312  
Committed to increasing the number of successful black engineers who can positively impact the community.

### ► American Indian Science and Engineering Society (AISES)

(<http://bioc02.uthscsa.edu/aisesnet.html>)

5661 Airport Blvd.  
Boulder, Colo. 80301-2339  
Phone: (303) 939-0023  
Fax: (303) 939-8150  
E-mail: [aiseshq@spot.colorado.edu](mailto:aiseshq@spot.colorado.edu)

Provides opportunities and resources and focuses on cultural issues for American Indian and Alaskan natives.

### ► Black Data Processing Associates (BDPA)

(<http://www.bdpa.org>)

National Headquarters  
1250 Connecticut Ave. NW,  
Suite C1,

Washington, D.C.

20036-2604

Phone: (800) 727-BDPA

E-mail: [info@bdpabac.com](mailto:info@bdpabac.com)

Goal is for members to be a positive influence on the direction of information technology and related industries and on the impact those fields have in the minority community.

### ► The Society of Hispanic Professional Engineers

(<http://www.glue.umd.edu/~shpe>)

Promoting advancement, education and leadership for Hispanic scientists and tech professionals.

### ► National Organization of Gay and Lesbian Scientists and Technical Professionals

(<http://www.pride.net/noglstp>)

Association of gay, lesbian and bisexual professionals concerned with promoting networking, providing education, opposing anti-discrimination and disseminating information.

### ► Minority Career Resources OCC

(<http://www.occ.com/occ/WomenMinority.html>)

Listing of resources and Web sites for women and minorities.

### ► Engineering Coalition of Schools for Excellence in Education and Leadership (ECSEL)

(<http://web.mit.edu/ethics/www/ecsel/other.html>) Tons of information here. Links to organizations,

information and resources for women and other minorities in the science and engineering fields. It is maintained by ECSEL, which is dedicated to providing information and resources for reducing the barriers to minorities and women in technology.

## WOMEN'S RESOURCES

### ► FeMiNa

(<http://www.femina.com/femina/computers>)

Femina is Latin for "woman." This site, the organization's computer resources for women page, will link you to myriad topics, organizations, publications, forums and chat groups of interest to women.

### ► WWWomen Web Ring

(<http://www.wwwomen.com>)

Developed to link Web sites containing information of interest to women, this site has a neat "random tour." It will take you to almost anyplace in the women's universe. Also has a science and technology and an education category.

### ► Working Woman's Business Network (Wwbiznet)

(<http://www.womweb.com>)

Offers women everything from business and personal classified ads, book reports and a list of women-related events and organizations.

### ► Cybergrrl

(<http://www.cybergrrl.com>)

Maintained by Eliza Sherman, this site offers a hip online guide to sites of interest to "grrls" on the Web.

### ► Women's Wire

(<http://www.women.com>)

This site has news, interviews, columns, reviews, interactive opinion polls, profiles and advice on topics and issues that serve the professional and personal interests of women.

## WOMEN'S ORGANIZATIONS

### ► Society of Women Engineers (SWE)

(<http://www.swe.org>)

Produces a publication, sponsors conferences and offers a resume database and electronic job list.

### ► Association for Women in Computing

(<http://www.halcyon.com/monih/awc>)

Dedicated to the advancement of women in the computing industry. Offers programs, networking, stats, information, links, conferences.

### ► National Organization for Women

(<http://now.org/now/home.html>)

NOW provides news and information about issues concerning women's rights. ✱

*Compiled by Mari Keefe, Computerworld's on-line researcher.*



"I was looking to join  
one of the world's  
top technology companies.

(I found it in the financial district.)"

**NAME:**\* Paul Barrett

**DEGREE:** B.S., Computer Science

**SCHOOL:** University of Massachusetts  
Class of 95

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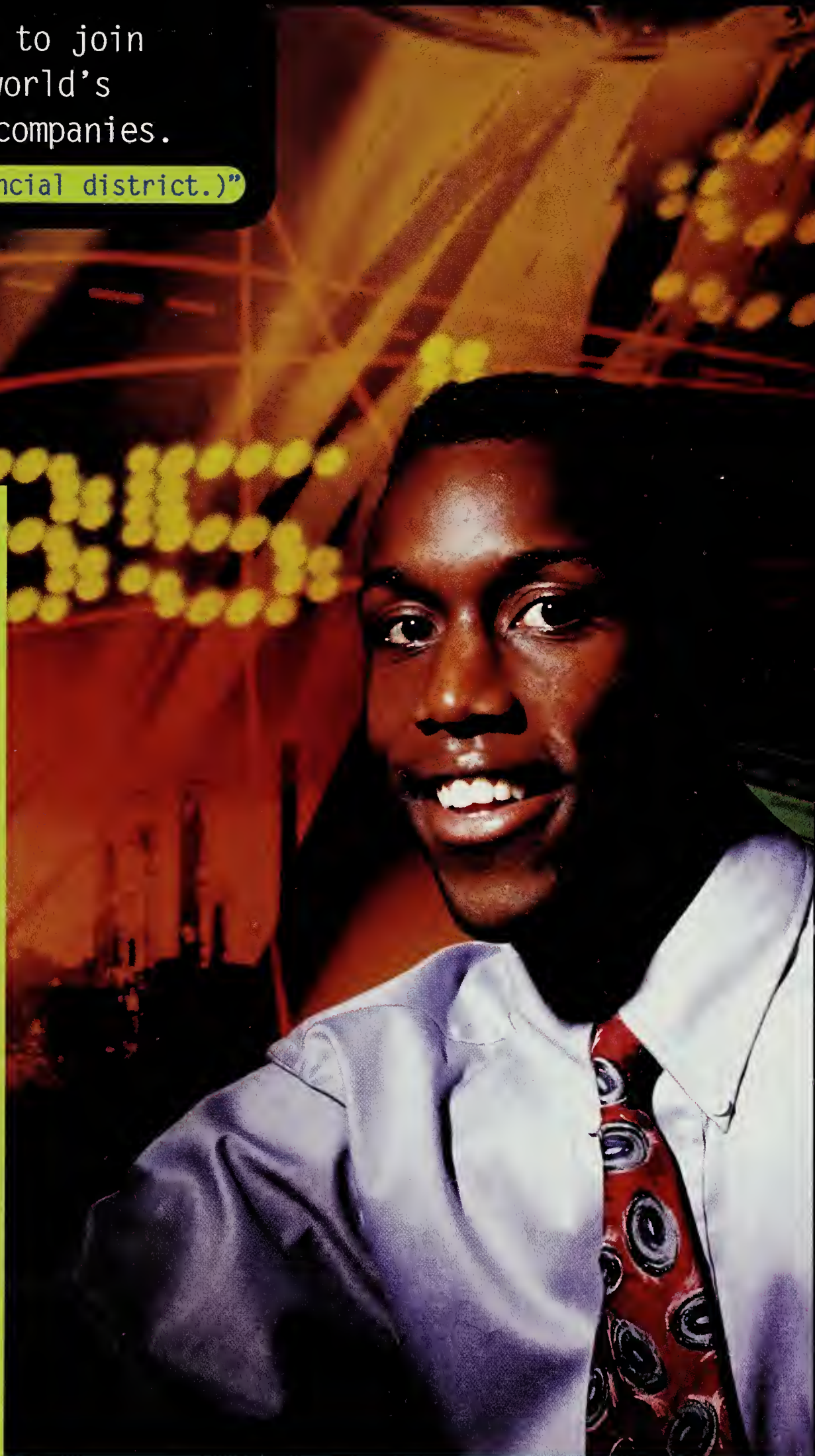
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